THE
MEDICAL AND SURGICAL
REPORTER.

No. 1914. PHILADELPHIA, NOVEMBER 4, 1893. Vol. LXIX—No. 19

ORIGINAL ARTICLES.

CONTRIBUTION TO THE STUDY OF YELLOW FEVER FROM A MEDICO-GEOGRAPHICAL AND PROPHYLACTIC POINT OF VIEW IN THE MEXICAN REPUBLIC.*

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At its meeting held last year in Mexico City, the American Association of Public Health appointed an International Committee "On the origin, causes and development of yellow fever, and the proper means to wipe it out at its birth."

I had the honor to be named as one of the members of this Committee, and I have since received a letter from Dr. Formento, its President, in which he uses the words: "We hope to be able to present at the next meeting a partial report, at least, on this important international sanitary question, and in order to facilitate the work of the Committee, each individual member of the same is urgently requested to give full expression to his views on the subject, and indicate sanitary measures and local reforms or improvements in the reputed habitants of yellow fever, as he considers most effective to bring about the greatly desired object, namely, the stamping out of the scourge in its very cradle."

I have copied the exact text of the words used by the President of the Committee in order to show the manner in which we ought to enter upon the consideration of this important problem, with a view to a satisfactory solution.

If each one of the members of the Committee undertakes to treat the whole of the question he will necessarily have to repeat a great deal that has been previously said by other physicians that have discussed the subject; but if I only undertake the study of a limited portion of the problem, I may, perhaps, be able to throw some light on the subject, and with that object in view, I now propose to present to the Association a brief study containing all the information of a positive character which has been acquired in the Mexican Republic, with respect to the following points:

1. Places which we may consider as *centres* of yellow fever, on the coast of the Gulf of Mexico.

2. Localities in which the yellow fever does not originate, but which present favorable conditions for its development once it has been imported from any other place.

3. Epidemics of yellow fever which have invaded different localities of the Coast, specifying the causes which have given rise to the same, based on exact data in our possession.

4. Immunity which is enjoyed by individuals born in places where the fever prevails with an endemic character, and

* Read before the International Congress of Public Health, October, 1893.

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the manner in which we are to understand this immunity.

5. Inoculations of Dr. Carmona to obtain this immunity.

6. Measure of sanitary police which I consider indispensable to prevent the importation of yellow fever in those localities which favor its propagation and development.

The Mexican Republic is situated to the south of the United States of America and extends between the parallels of 14 and 32 degrees of north latitude, with width covering 30 degrees of longitude, and an area of 2,000,000 of square kilometres. On the west it is washed along the whole of its coast by the Pacific Ocean, which takes the name of the Sea Cortez or Gulf of California in that part which separates the Peninsula of California from the mainland of the continent, and on the east it is washed by the Gulf of Mexico and the Caribbean Sea.

On the Pacific Ocean the Republic of Mexico has 6,250 kilometres of coast, and 2,580 on the Gulf of Mexico.* This enormous extent of coast is considered by Europeans, and even by Americans, to be extremely unhealthy, they having an erroneous impression that on those coasts yellow fever originates and develops in a *spontaneous* manner. I desire to correct this error, by informing the Association that in the entire Pacific coast and in the 3,000 kilometres of coast on the Peninsula of Yucatan, yellow fever *has never appeared in a spontaneous manner.* Neither has it appeared in the greater part of the coast that forms the Gulf of Mexico.

I will now indicate the localities which were considered as centers of infection, for the reason that yellow fever prevails in them in an endemic form.

The City of Vera Cruz, in the port of the same name, occupies to-day the same position that it has had since the year 1599.

The investigations which have been undertaken by physicians and historians have never been able clearly to determine whether the yellow fever originated in Vera Cruz, or was imported from other parts. Many authors are inclined to adopt the latter opinion, and especially Dr. Charles Heinemann, a distinguished German physician, who for many years practiced his profession in that port and from whose interesting works I have taken many of the data for this paper.* However this may be, the fact is that Vera Cruz for more than two centuries has been the most important hotbed of yellow fever in the whole coast. From this point the troops started in 1843, who introduced the disease for the first time in the port of Tampico. The epidemics which ravaged the same port in the years 1847–8, and 1863–4, owe their origin to the same circumstances. In the same way, the disease was carried to Tuxpam in the year 1863, and to Jicaltepec in the years 1861 and 1868. In Vera Cruz the greater part of the epidemics take place in the summer time between March and October, but on some occasions, as in the years 1867–8 and 1877–8, the epidemics raged through the winter.

According to Dr. Heinemann, the port of Alvarado, situated 18 leagues to the southeast of Vera Cruz and near the mouth of the River Papaloapam, is another center of the disease.

Tlacotalpam is a city situated on the left bank of the same river, and at a distance of twenty-five miles from Alvarado. It is also considered by the physician I have mentioned, as a cradle of yellow fever, whilst others† are of the contrary opinion.

Laguna is the principal town on the Island of Camen, and derives its importance from the exportation of dye woods. This is another permanent centre of the disease, which causes numerous victims every year among the foreign sailors.‡

Campeche is the capital of the State of the same name in the Peninsula of Yucatan, and is another source of yellow fever at those times when Federal troops are stationed there, proceeding from the more elevated parts of the country or from abroad. This happened in the year 1865, when two companies of Austrian troops lost the greater part of their numbers through yellow fever. Dr. Patrico Trueba, a distinguished physician who has resided in Campeche for the last 25 years, is also of the opinion that the crowding together of persons who have

* Los Estados Unidos Mexicanos, etc,. R. de Zayas Enriquez, 1893.

* Estudios sobre la Fiebre amarilla en la costa oriantal de la Republica Mexicana por el Dr. Carlos Heinmann, 1879. Work inserted in the Gaceta Medica de Mexico, Vol. XV.

† Drs. Gregorio Mendizabal and Diodoro Contreras.

‡ Op. cit., Page 247.

not gone through the disease, favors the development of yellow fever.

The City of Merida, capital of the State of Yucatan, which covers the northern part of the Peninsula of the same name, as well as the districts comprised within that State under the name of Unucma, Progreso, Temax, Tizimin and Valladolid, are considered as centers of yellow fever by Dr. Jose Palomequem, a distinguished physician of Merida, and who declares that the disease in that place finds its greatest development amongst the foreigners who have not already had it, the natives of the elevated table-lands in the center of the Republic, and the Indians from the other towns of the same State. Mr. Zayas Enriquez expresses the same opinion.*

To the districts of the States of Yucutan which I have above mentioned, Dr.† Domingo Orvananos in his recent work adds the district of Motul and Mazcanu as being centres of yellow fever.

The preceding lines will have demonstrated that in the Gulf of Mexico and out of a length of 2,580 kilometres of coast, only that small part belonging to the Canton of Vera Cruz, to the District of Frontera, to Campeche and the northern coast of the Peninsula of Yucatan, can be considered as *centres* of development for yellow fever, as they are in constant communication by sea with each other and with the Island of Cuba. It is to be noted that these last mentioned localities are only separated from the Island of Cuba by a narrow strait, and that it is natural to suppose that the disease was originally imported from that Island.

In contrast to the narrow limits of the centres of infection, we can present the enormous coast line of the Gulf and of the Pacific, where the germs of yellow fever find a fertile soil for their development only when they are transported from those places in which the disease prevails in an endemic form. With the object of rendering my study of the subject more precise and of basing it on exact data, I will now proceed to examine the different points on the Gulf and Pacific coasts from this point of view, taking the greater part of my data from the works which I have already mentioned.

The Port of Metamoros is situated opposite to Brownsville on the United States frontier, and has suffered from epidemics of yellow fever in the years 1858, 1864 and 1867.‡

Altamira went through its first epidemic of black vomit in the month of October, 1821, shortly after the arrival in that port of a vessel from Havana. More than fifteen hundred persons, both native and foreign, succumbed during the ravages of the epidemic.

Tampico, on the left bank of the river Panuco, was visited, as I have previously mentioned, by its first epidemic of yellow fever in the year 1843, twenty years after its foundation. ‖

Tuxpam, on the left bank of the river of the same name, was visited by an epidemic in the year 1838, which was not repeated until the year 1863, and was then imported by vessels arriving from Vera Cruz. It attacked the natives of the locality, the Mexicans newly arrived from the table land and foreign sailors, and it afterwards spread to the villages of Jico and Huauchinango.

Papantla and Misantla were visited by an epidemic of yellow fever of the most deadly character, which was imported by the troops passing through those districts during the revolution of 1876.

Nautla was visited by the epidemic in 1859, and Jicaltepec in the years 1861 and 1868.

Trusting to the information given by Dr. Heinemann, in whose judgment I have the greatest confidence, I give a list of the following towns in which the yellow fever has never appeared within the memory of men: §

Santecomapan, La Barilla, Coatzacoalcos, Santa Ana, Cupilguillo, Dos Bocas, Chiltepec, San Pedro y San Pablo, Barra del Rio Palizada and Champoton. According to many other numerous and reliable reports that I have received, the foreign sailors in those parts have hitherto escaped the disease, in spite of the hard work they have to perform under a burning sun, receiving and stowing the goods with which the ships are loaded.

Although the above mentioned author

* Los Estados Uni os Mexicanos. Mexico. 1893.

† Ensayo de Geogragia Medica y Climgtologica de la Republica Mexicana.—Dr. Domingo Orvanos.—1889.

‡ Heinemann. Op. cit.
‖ Heinemann. Op. cit.
§ Heinemann. Op. cit.

says that Coatzacoalcos and Minatitlan have not suffered from yellow fever, they were nevertheless invaded by the epidemic in September of last year, the disease being communicated by persons who had arrived from Vera Cruz in the steamer May.*

Frontera has from time to time been visited by mild epidemics, which have attacked both natives and foreigners.

San Juan Bautista de Tabasco had never been visited by yellow fever until the year 1877, when it was imported by the troops under the command of General Enriquez, coming from Campeche and touching in Frontera.

The disease attacked the inhabitants of this town without distinction of race, and afterwards spread to Micaltepec, Huimanguillo, San Antonio, Cardenas, Nacayuca, Jalpa, Pichucalco. Doctor Castanares, who has lived in that locality, believes that the Mexicans, who are natives of the cold country are the first to be attacked by the epidemic, whilst it respects the natives of the State of Tabasco.

I have already mentioned that the epidemic at times spreads from the ports to some of the towns situated within a certain distance of the coast. I now propose to treat, although lightly, of the spread of the disease along the lines of railroads which run from Vera Cruz to Mexico and Vera Cruz to Japan. During the construction of the first mentioned line and as the works advanced, the disease presented itself at all the stations excepting Tejeria, although it is only situated at a distance of fifteen kilometres from Vera Cruz. This station preserves its immunity to this day, whilst in LaSoledad, El Camaron, Paso del Macho and Atoyac a few cases of yellow fever are observed almost every year. But the city situated on this road in which the epidemic presented itself on several occasions, and where it has carried off the largest number of victims, is Cordoba. Situated at a distance of 105 kilometres from Vera Cruz and at an altitude of 827 metres above the sea-level, it has undergone epidemics imported from that port, in the years 1866–7, 1876–7, 1880–1 and 1892–3.† In the year 1876, more than two thousand persons perished in the epidemic which spread to many of the neighboring towns and villages.

Following the ways of communication by the road from Vera Cruz to Jalapa, the epidemic was carried to the towns of San Juan and Paso de Ovejas, but never reached Jalapa, which is almost at the same distance from Vera Cruz as Cordoba, but at an elevation of 1,320 metres above the sea-level.

The highest point in which the yellow fever has, up to the present date, been found susceptible of development, is the village of Las Animas, situated between Cordoba and Orizaba, at an elevation of 1,008 metres above the sea-level.

The extensive coast of the Pacific had always enjoyed an immunity from this epidemic, with the exception of short stretches belonging to the States of Michoacan, Oaxaca and Chiapas, which on two distinct occasions had been visited by yellow fever.

In the localities which I am about to mention, all memory had disappeared of an epidemic of this class, if they ever had known such a thing, so that when it presented itself in Mazatlan, the local physicians did not recognize it, believing that it was not a disease special to that climate. Nevertheless, in August, 1883, the Pacific Mail Steamer, "San Juan," arrived with sick people on board who had imported the yellow fever in Mazatlan. The epidemic spread with such rapidity that within five days 3,000 persons were attacked with the disease. From Mazatlan it extended to Guaymas, San Blas, Acapulco, Manzanille and other places. Amongst these latter I would especially mention Culiacan and Hermosillo, on account of the distance at which they are situated from the coast. The epidemic ceased in the month of October in the same year, and has never been repeated. From the preceding remarks, it will be seen that the immense coast of the Republic, washed by the two oceans, is always liable to be invaded by epidemics of yellow fever when it is imported. Matamoras was visited by epidemics in 1858, 1863 and 1867.

As we have already seen, the epidemic appeared in Altamira during the year 1821, after the arrival of a vessel from Havana.

The first epidemic was carried to

* Report by Don Ignacio Garfias, Inspecting Engineer of the National Railway of Tehuantepec.

† Data furnished by Dr. Gregorio Mendizabal of Orizaba.

Tampica in the year 1843, by troops from Vera Cruz.

To the same circumstance, we attribute the great ravages committed amongst the American troops in 1847–8, who garrisoned that town during the war.

The epidemic was also imported into Tampico during the years 1863–4, by two battalions of the French army. The great epidemic that ravaged Tampico in September, 1878, was imported from New Orleans with a cargo of grain, and acquired its development because it fell on favorable ground, the cyclone which had previously devasted the coast having caused inundations in the neighborhood of the port.

In June of the following year, a large shipment of damaged cotton goods was received in this port, which had been submerged in the sea. These goods were hung up to dry in the rooms occupied by some employes of one of the stores, and this circumstance gave rise to the commencement of an epidemic which lasted until the month of December.

I must here state, that from that date no new epidemic has appeared in Tampico, although isolated cases have been observed in persons who carried the disease with them from Vera Cruz.

Tuxpam was visited by an epidemic in the year 1838.* Dr. Ordozgoiti does not state how the epidemic developed itself, but he clearly declares that the epidemic of 1863, was imported from ships arriving from Vera Cruz. As I have always said, the mulateers carried the disease as far as Jico and Huauchinango. Troops arriving at Tuxam from Vera Cruz introduced the epidemic in the years 1877 and 1878.

Papantla: A detachment of troops passing through this town in the year 1876, brought an epidemic of yellow fever with them which developed the most deadly characteristics.

Nautla: An epidemic took place here in the year 1859.

Jicaltepec: An epidemic appeared in this town in the year 1861, which was limited to the right bank of the River Nautla.† It was also visited by an epidemic in the year 1868.

Coatzacoalcos: The yellow fever was carried to this port in the month of September, 1892, by some sick men on board of the steamer "May" from Vera Cruz.

Minatitlan: The disease was carried to this port at the same time and under the same circumstances as the last one mentioned.

Frontera: From time to time mild epidemics are observed in this town, the disease affecting both foreigners and natives alike.‡

San Juan Bautista: As I have already stated, this port is situated at a long distance from the coast and on the right bank of the River Grijalva. An epidemic raged there in the year 1877, having been imported by Mexican troops which had touched at Frontera on their way from Campeche. From San Juan Bautista the epidemic spread to Micaltepec, Huimanguillo, San Antonio Cardenas, Nacayua, Jalpa and Pichucalco.

Don Francisco Arguelles, who is quoted by Dr. Heinemann, says that the first cases of yellow fever which appeared in Pichucalo, originated in the house of a Spaniard named Bustamante, who had just received a shipment of goods from San Juan Bautista. "These goods were transported up the river in canoes, to a point distant one league from Pichucalco, where they were unloaded and carried to the town by mules. Mr. Arguelles knows nothing of the fate of the canoemen, but he asserts *that all the muleteers* took the disease, A few days after the arrival of the goods all the people living in Mr. Bustamante's house fell sick, and fourteen of them died. From this house the contagion was propagated throughout the whole town, making numerous victims in all classes amongst the residents; but it was remarked that the Indians who came from the cold country (San Cristobal, Chiapas) succumbed to the disease with *greater facility* than those from the hot country, After a few days the merchandise forming this unfortunate shipment was carried on the backs of Indians to San Cristobal, but on the road itself the porters were attack by the disease one after the other. The epidemic did not reach San Cristobal, which is five leagues journey from Pichucalo, and its force was greatly diminished by the month of August, although it still continued on a smaller scale till the begin-

*Heinemann.—op. cit.

†Heinemann.—Op. cit.

‡ Mr. Barnard, cited by Dr. Heinemann.

ning of December, when it finally disappeared."

Dr. Castanares, who has practiced his profession for 23 years in Tabasca, says that the epidemics only appear in that State when there occurs a great crowding of people under unhealthy conditions, as for instance, in a military encampment. Dr. Castanares believes that the epidemic attacks with greater facility the natives of the neighboring State of Chiapas. According to Dr. Orvananos* epidemics of yellow fever have visited the State of Yucutan in the years 1855, 1857, 1881–2 and 1883, and have also appeared in the State of Vera Cruz in the years 1863, 1872, 1873, 1875, 1878, and 1879, and in Campeche in the year 1865. The author does not give any details as to the manner in which the epidemics deveioped themselves.

Dr. Orvananos speaks of epidemics having appeared in the State of Michoacan, during the years 1813, 1814 and 1860, but I believe that this can only have taken place along a short stretch of coast, as I can find no record of these epidemics. The same remark applies to the State of Oaxaca during the years 1850 and 1857. In the work of this author to which I refer, he simply says, as I have above shown, that in the States of Jalisco and Sinaloa an epidemic appeared in the year 1882, but this assertion is plainly contradicted by Dr. Praslow,† who says:

"The yellow fever was imported by the American steamers, as I will prove further on, for this disease was never previously seen on the coast of Sinaloa, and Sonora, a fact than can be clearly proved by the books which from the time of the Jesuits have been written, and which speak of other diseases, but not of yellow fever."

The epidemic which spread during the year 1883, along the entire coast of the Pacific, is of the greatest interest in view of the question we are now studying. If any previous epidemics had ever appeared, the memory of them was so completely lost that when the first cases of yellow fever presented themselves in the port of Mazatlan, the physicians did not recognize them, founding their doubts on the fact that this disease had never been seen on the west coast of Mexico. Another great point of interest presented by this special epidemic, is found by following up the way in which the disease was introduced, that is to say, by sea. Dr. Praslow‡ maintains that the yellow fever may have been imported from the year 1882 by the steamers of the Pacific Mail which brought yellow fever patients from Panama, who did not land. He proves this assertion by letters from persons who had traveled in the steamer "Colima," on board of which the captain and six stewards fell sick.

The same did not happen in August, 1883. In that month the steamer, "San Juan" belonging to the same company, reached Mazatlan with 33 sick people on board coming from Panama. Some of them landed, and the consequent epidemic spread with such force, that as I have before said, more than 3,000 people were attacked in the port within the first five days, whilst 22 died in only one day. The epidemic rapidly extended itself to other ports on the coast, and visited the ports of La Paz, Guaymas, Altata, San Blas, Manzanillo, Santiago, Acaponeta, Acapulco, Puerto Angel, Salina Cruz, Tonala, Soconusco, Tapachula and San Benito, and in the interior of Hermosillo and Culiacan.‖ A very important fact to be borne in mind, is that in all the territory included between the Yaqui and Mayo rivers which are inhabited by Yaqui Indians under the command of the valiant chief, Cajeme, the epidemic did not put in an appearance. This was due to the energetic attitude assumed by the chief of the tribe, who prohibited all communication with the outside world, either by sea or land, under penalty of death. This fact has the force of an experimental demonstration and clearly shows the sovereign efficacy of isolation as a precaution against the transmissible infectious diseases.

IMMUNITY.

It is a universally accepted fact, that an individual who has once suffered an attack of yellow fever, is exempt from any more, but exceptions can be found to this rule, the same as in the cases of typhus, typhoid fever and scarlatina, but

* Op. cit.

† Apuntes sobre la fiebre amarilla en la epidemia que reino en Culiaca en Agosto de 1884.—Culiacan.—1884

‡ Op. cit.

‖ Documents of the Supreme Board of Health of Mexico.

these cases are comparatively rare and they are so with yellow fever. This immunity is acquired after repeated attacks, as well as mild ones, and even when the attacks have been abortive.

Other persons who also enjoy immunity from the disease, are those who have been born in those places where yellow fever is *endemic*. This immunity is so general that Dr. Heinemann had made use of it to establish the difference between the regions where the disease is endemic and which are in this paper considered as *centres*, and all those other places which present favorable conditions to the development of the disease *when imported*, but in which it does not spontaneously engender. Nevertheless, this immunity is not by any means absolute, as the physician whom I have quoted mentions cases of persons who had been born and had lived in Vera Cruz, and who nevertheless had been attacked by yellow fever. Similar observations have been made by other physicians of Vera Cruz, who are worthy of all credit.

The immunity can in some cases, although very rarely, be lost, when the person who enjoys it has been absent for a longer or shorter period from the locality. The time required to elapse before the immunity is lost is very variable.* Dr. Garmendia relates the case of a relation of his own who was born in Vera Cruz and lived there. He remained in Europe for three years, and on his return suffered an attack of yellow fever that put his life in danger. A gentleman of advanced age who for many years had filled the position of director of the military hospital, was attacked by yellow fever after having passed some years in Jalapa and in the Capital of the Republic.

As I have before stated, Dr. Heinemann considers, that *the immunity of the natives in any locality where the yellow fever reigns in an endemic form, is the criterion to guide us in classifying the endemia.*

"In a town in which yellow fever had been prevalent for many years," he says, "the natives acquire an immunity, but if for another series of years the disease should not appear, the natives will lose the immunity they have acquired." A proof of this is found in what happened where epidemics appeared in 1843, 1847, 1848 and 1853. Up to that time the epidemics attacked both foreigners and natives of the locality, but in the epidemics of 1863 and 1864, the natives had acquired that immunity and therefore escaped. But after the year 1878, they had lost this immunity, as is proved by the fact that Dr. Hegevich, physician of the Military Hospital in Vera Cruz, attended several soldiers who were natives of Tampico, and who contracted the disease in that port, besides the son of a merchant in Tampico who had removed his business house to Vera Cruz.

I venture to give an explanation of this fact, which appears so extraordinary to Dr. Heinemann, whose opinions I have quoted in the preceding paragraph.

Starting from the unquestionable fact, that an individual who once undergoes an attack of yellow fever is afterwards safe from this disease; that this immunity is enjoyed both by those who have suffered from severe attacks, as well as those who have only had slight attacks, and even by those persons in whom the disease had presented itself in an abortive form, taking for granted the fact that in those localities in which the disease had prevailed for many years, the natives acquire that immunity in the course of time, which they afterwards lose if the disease has not appeared for another series of years, we can base the hypothesis, that all those persons who enjoy such immunity have acquired it by previons attacks which have generally been of a mild character, sometimes abortive, or, perhaps, in the earliest infancy. This hypothesis is supported by the practice of many ladies, who finding themselves absent from the localities in which yellow fever reigns in an endemic form, returned to those localities previous to their confinements, with the object of placing their children in a position to acquire that immunity. The idea that I am presenting is not only my own, but is also largely supported by many physicians of Vera Cruz.

The conviction that mild attacks of diseases which can only be taken once in a lifetime, form a safeguard against any graver form of the same disease, is what induced physicians to inoculate persons with a mild form of small-pox, as a precaution against the real and dangerous disease, until the admirable discovery of Jenner demonstrated the possibility of

* Dr. Garmendia, quoted by Dr. Heinemann.

rendering men safe against that terrible scourge. In later years we have seen the wonderful discoveries of Pasteur, and following his footsteps, we have earnest workers from all nations, laboring night and day in patient investigation and scientific experiments, all directed to procuring the immunity of men and animals against certain diseases. This brings me to speak on the question of preventive inocnlations.

Neither I, nor any of my colleagues from the Mexican Republic have any experience with regard to the practical results of the inoculations made by Dr. Freire, of Brazil, and; therefore, I shall confine myself to those which have been practiced by Dr. Carmona y Valle, of Mexico. This friend and colleague of mine, published in the year 1885, his clinical lectures on the etiology and prophylaxis of yellow fever, and with the object of procuring the immunity of those persons who might be disposed to contract the disease he proposed to inoculate them under the skin with a mixture of one gram of distilled water to one or two grams of residue of the urine from yellow fever patients, which had been submitted to spontaneous evaporation, so as to obtain a dry deposit. After numerous experiments on animals, Dr. Carmona inoculated himself as well as other persons who voluntarily presented themselves to help him in his experiments. The results having convinced him of the inocuousness of the method, he inoculated persons who were going from Mexico to Vera Cruz, Havana, or the Pacific Coast, which, at that time, was being ravaged by yellow fever. The greater part of the persons inoculated escaped the disease, but a few were attacked and some even died. The experiments were, therefore, not of a decisive character. In order to give it this character, it was proposed to make comparisons of the mortality caused by yellow fever amongst the convicts living in the penitentiary of San Juan de Ulua, on an island in the port of Vera Cruz in front of the city, and the soldiers who should be previously inoculated by this system, from the garrison of Vera Cruz. Both these classes of men are taken to Vera Cruz from the more elevated parts of the Republic, they are not acclimated, and mostly belong to the same social status.

The number of sick people admitted into the civil and military hospitals of Vera Cruz during the months of January to May, 1885, as well as the comparative table of the sick who came from the penitentiary and the soldiers of the garrison, *who had been previously inoculated,* are set forth in the works of Dr. Carmona.* A study of this work shows us "that during the five months of the year in which the epidemic raged, the convicts who were attacked numbered 72, being 41.52 per cent., whilst the number of cases amongst the inoculated soldiers only came to 26 or otherwise 6.84 per cent."

It might be objected that the conditions of life and the moral condition of the persons submitted to the experiment, are not similar, but Dr. Carmona also presents the testimony of 174 soldiers who arrived in Vera Cruz at the end of July of that same year and who had not been inoculated or acclimated. These soldiers came from the State of Tabasco where they had been living in a climate as hot as that of Vera Cruz. This group could very fairly be compared with that which was formed by the garrison of the place, the soldiers of which had been inoculated.

The following were the results: In three months there were 56 cases in the first group or 32.18 per cent., (it must be remembered that in the group of convicts the percentage was 41.62), which makes us believe that if the observation had lasted as long as the other, *i. e.*, five months, the percentage would have reached the 41.62.

From these facts we can infer that inoculation and not the hygienic conditions was what caused the least proportion of cases. Notwithstanding that these facts have been known, no experiments have been made either in the Republic or abroad, but I believe that it is now time to again experiment in order to find out their true value. Had we not been convinced of this, we would have become so by reading what the eminent Dr. Geo. M. Sternberg† says in his review. He says: "According to the results to which we

* Lecons sur l'Etiologie et la Prophilaxie de la Fievre Jaune, Mexico, 1885. De quelques faitsrelatifs a la Fievre Jaune, Rapport presente parle Dr. Cormonay Valle.

† Inoculation for contagious diseases. Preliminary report of the Committee of the American Public Health Association.

refer, the writer has thought that inoculations as practiced some years ago by Dr. Carmona y Valle, of the city of Mexico, may have rational bases." He adds: "Lacking the knowledge of the infectious specific agent of yellow fever, two methods are presented which may obtain immunity by means of inoculation. The first method is to follow the experiments of Professor Carmona, by which a sufficient quantity of specific toxalbumin of yellow fever is introduced, under the supposition that such substance exists in the blood of patients during the progress of the disease.

"The second method is to introduce into the circulation of the susceptible person the antitoxin of yellow fever, which, if we reason by analogy, is to be found in the blood of persons who enjoy immunity. In the experiments made to determine the possibility of establishing immunity by the first method we should propose that the urine shall be evaporated rapidly in vacuum."

As it will be seen, Dr. Sternberg recommends the inoculations of Dr. Carmona. Accepting the hypothesis that the urine of yellow fever patients may contain specific toxalbumin which might produce immunity. This hypothesis is strengthened by the demonstrations of Dr. Bouchard of France, which show that what is so inoculated is eliminated through the urine. As I have demonstrated that the only way to have immunity is by having had the yellow fever, if we succeed—with Dr. Carmona's inoculation—in introducing a substance which shall produce immunity, then we shall have obtained the same results as vaccine in small-pox. With the idea of scientific principles which modern science has reached, the inoculations of Dr. Carmona should be tried again, making the rapid evaporation of the urine in vacuum as recommended by Dr. Sternberg, and as experience has demonstrated that they are harmless, and easy in their technic, they should be made simultaneously in all countries where yellow fever exists or is liable to be introduced. Were results to be published in an uniform manner, in blanks printed for the purpose, by the yellow fever committee, then we would soon find out whether the inoculations have any value or not. If results justify the practice, we shall have obtained immunity for the people who are compelled to live in those places, and if not the second method should be tried, *i. e.*; the one proposed by Dr. Sternberg; the inoculation of blood secured from persons already immuned.

As prophylactic means, I recommend the purification of the drinking water, for Dr. Gavino, Professor of Bacteriology in the Medical School of Mexico, has observed that in Vera Cruz the people who drank well or cistern water or others kept in such a way as to become impure, were more liable to the disease than those who drank the water of the Tampa river when it had not been contaminated. The same professor, on examining the drinking water of Vera Cruz, found an unknown bacterium, which liquifies gelatin and congregates in oval colonies of a yellowish-greenish color which reminds us of the color of yellow fever patients.

He examined the liquid from the intestines and found a bacillus of the same character, but shorter than the one found in the water. This similarity and the fact that bacteria was not found in the liver, spleen, kidneys or blood made him believe that yellow fever is an intestinal disease. Were this to be confirmed, the purification of water wonld be an absolute necessity. but if it is not confirmed it will be of benefit to those who drink it.

The last subject which I propose to study is the means by which we can prevent the importation of yellow fever. This is a most important point when we consider that if the methods of which we have spoken will some day prevent the disease, the measures which we are going to propose, strictly enforced, will not only prevent the disease from spreading out of the present epidemic centers, which are few, into the great territory of our Republic, which although it does not originate the disease, is very fertile to receive it, but what is still better, the measures proposed will prevent the disease from being imported to our centers in the seasons when there is no fever. This could not be called an ideal, because it is a known fact that many doctors and historians believe that yellow fever was imported to Vera Cruz, our principal center, more than three centuries ago. What happened in New Orleans is the best proof of the assertion, for that port was a center of infection, from whence it was taken to Tampico, as we have already said, and

the fever has not shown itself for the last fourteen years, since the port has been closed to vessels from infected ports. The measures which I proposed are founded on the two great resources placed within our reach by hygiene : *Isolation and disinfection*, applied not only to vessels coming to infected ports, but to those leaving the said ports. Having reduced to a minimum the harm which all sanitary measures generally bring to commercial interests and communications, we have not forgotten that *Salus populi suprema est lex.* The measures are as follows : Landing and isolation of the sick ; keeping passengers who may be suspected and who land under observation for seven days and allow those who will not submit to observation to proceed to places over 1,000 meters above the sea level. Disinfection of the ship or the ports which may have become infected. Disinfection of ship's manger and fresh water supplied. Disinfection of all wearing apparel, baggage and merchandise liable to infection, especially packing cases. These measures are not to be so strictly enforced if the ship has no sick on board on arrival, if it has no merchandise liable to infection, or if it has on board a disinfecting apparatus and a doctor.

CONCLUSIONS.

1. The places where yellow fever reigns and which can be considered as centers of infection are in the Gulf of Mexico, Vera Cruz, Frontera, Campeche and the districts on the districts on the northern coast of the Yucatan peninsula, the last named separated by the Yucatan canal from the island of Cuba, where the fever also reigns. On the great Pacific Coast, which belongs to the Mexican Republic, there is not a single yellow fever center.

2. All the Mexican territory of the Gulf of Mexico and on the Pacific Coast is well adapted for the disease when imported.

3. Yellow fever has become epidemic in the following places of the coast on the Gulf: Matamoros, Altamira, Tampico, Tuxpan, Papantla, Misantla, Nautla, Alvarado, Coatzacoalcos, Minatitian, Lagang, and San Juan Bautista de Tabasco.

4. The epidemic has extended into the interior, but never into ploces situated more than 1,008 meters over sea level.

5. On the Pacific there is not a yellow fever center, but it has been imported into the following places: On the peninsula of lower California, La Paz y Todos Santos; on the Continent, Guaymas, Altata, San Blas, Manzanillo, Acaponeta, Acapulco, Puerto Angel, Salina Cruz Tonala Soconuzco, Tapachula, and San. Benito, and in the interior in Hermosillo y Culiacan.

6. Immunity against yellow fever is obtained after having had the disease in any of its forms. It is possible that this immunity may be lost at times, but it is seldom the case, as it happens with typhus, small-pox and scarlet fever, which may be had by a person who has had them.

7. The vaccine of Jenner against small-pox and others which science has discovered, authorize us to look for the one that will prevent the yellow fever. The inoculations against this fever which Dr. Carmona y Valle has practiced with success should be tried on a large scale, in an uniform manner, in order to be able to find out if they are efficacious or not. If future experience should confirm them, then they should be made compulsory in the countries where the fever reigns. If they should not prove worthy, then the inoculation with blood serum, as proposed by Sternberg, from persons enjoying immunity, should be tried on a large scale and in an uniform manner.

8. The purification of the drinking waters used by persons who have to expose themselves to contact the disease, should be recommended. The purification of the water used on board the ships leaving or calling at infected ports should be proposed.

9. The sanitation of the places which are yellow fever centers should be done at once.

10. To prevent, by means of sanitary police measures, the importation of fever into places where it can be developed.

Flying-Fish.

Melville. "I have just been reading that flying-fish have wings; is that true, Aunt Ida?"

Aunt Ida. "Yes Melville."

Melville. "And do you have to catch them with guns?" — *From Harper's Young People.*

COMMUNICATIONS.

SOME PRACTICAL POST-MORTEM POINTS.*

HENRY W. CATTELL,† A. M., M. D., PHILADELPHIA, PA.

1. Get all the anatomical knowledge you can out of every autopsy you make. It is, therefore, usually advisable, especially in the case of females, to perform a preliminary laparotomy. Many surgical operations can be practised upon the body without disfigurement, such as Alexander's operation, oöphorectomy, removal of the ear ossicles, and vermiform appendix, stretching of the sciatic nerve, symphysiotomy, etc.

2. Do not forget to dictate the post-mortem notes while the autopsy is in progress.

3. Respect the feelings of the friends in every possible manner, and always return everything in a private house to its proper place. Be sure to leave no blood marks behind.

4. Be sure you have a legal right to make the post-mortem before you begin. The nearest relative, or the one who is going to pay the expenses of the funeral, should give the consent in writing.

5. Do not take away more tissue from a post-mortem than you are able to thoroughly work up.

6. Try to encourage a demand among the laity for the performance of autopsies.

7. In making an autopsy have a regular method for its performance, which is only to be modified by exceptional circumstances. Finish the examination of each organ in as thorough a manner as possible before the examination of another is commenced.

8. Label all your specimens at once with name of person from whom the specimen is removed, character of the specimen and relations in the body, date, and preservative fluid employed.

9. If you are so unfortunate as to cut yourself, wash the wound with running water for four or five minutes, and then dress antiseptically. Do not, out of bravado, go on with the post-mortem, if there be anyone else present who can complete it.

10. If you are not making the autopsy yourself do not be too forward in making suggestions to the one who is making it; but always be ready to do anything that you are asked to do in connection with the autopsy.

11. Let your medical friends enjoy the autopsy and specimens with you.

12. Get all the posts you can; never refuse to make an autopsy for another, when you possibly can.

13. Tact will get you many autopsies; curiosity of relatives and friends can often be worked upon to get permission for an autopsy.

14. As the object of the autopsy is usually to find out the cause of death, either for legal or scientific purposes, the post-mortem should, therefore, be conducted in as thorough and accurate a manner as possible.

15. In legal cases be sure to protect yourself in every possible way. The jars (which should never have been used) containing the specimens, should be sealed in the presence of a witness. In important cases here in Philadelphia, the Coroner has both of his physicians present at the autopsy, so that the testimony is stronger; and in case of absence of one of the physicians the other can go on the witness stand and the case not be postponed.

16. If you value your peace of mind do not put yourself forward as an expert witness in medico-legal matters. Knowledge which you already have should be freely given to the court in criminal cases, but the court cannot compel you to obtain expert knowledge without your consent.

17. In Germany the legal evidence of a post-mortem held by gas-light has been judged by the court, except under certain peculiar circumstances, to be void.

18. If two persons are lifting the body the lightest weight is at the feet.

19. Chloroform, when placed on a towel and the head enveloped in the towel, will quickly dispose of pediculi capiditis.

20. Many signs of inflammation, especially of the mucous membrane, disappear after death. Remember that red flannel often colors the skin red.

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*Read before Philadelphia County Medical Society, October 25, 1893.

†Demonstrator of Morbid Anatomy in the University of Pennsylvania.

21. Make the undertaker your friend. Do not recommend an undertaker who disapproves of post-mortems.

22. It is a good knife that will keep its edge in more than one post-mortem.

23. Do not jump at conclusions too quickly. Tentative diagnoses alone should not be made until the post-mortem is complete.

24. Always weigh the important organs, and have some method by which you can tell the right from the left organ in case of the double ones. One nick in the left-sided organs and two in the right will readily distinguish them.

25. Wash your hands frequently during the performance of an autopsy so as not to allow the blood to dry on the skin.

26. In opening a cystic kidney be careful that the liquid does not injure the eyes or soil the linen, as when the kidney is opened the liquid in the cyst is under pressure and may squirt several feet.

27. A duct can often be easily followed by making a nick in it, and then introducing a piece of broom stick or a groove director in the direction you desire to dissect. This is especially useful in the ureters and the ductus choledochus communis.

28. In writing the account of an autopsy describe what you see; do not use names of diseased conditions. These should be put in under the head of pathological diagnoses.

29. Urine, or aromatic spirits of ammonia will best take off the odor from your hands. This odor is usually gotten from opening the intestines.

30. Ammonia (also the aromatic spirits) will remove iodide stains; a weak solution of the hypobromite solution will remove carbo-fuchsin and other aniline stains from the hands.

31. Any organ which you desire to save should be placed in a safe place so that it will not be returned to the body and sewed up.

32. The dissecting-room is a poor place to study pathology, on account of the chloride of zinc forming with albumen an insoluble albuminate of zinc.

33. Nervous tissue for microscopic study should not be placed in zinc chloride or in alcohol.

34. Remember that a post-mortem, with the exception of the brain and cord, can be made with a penknife.

35. Remember that the thoracic and abdominal organs can be removed by the rectum or the vagina.

36. Before removing the calvarium have a basin so placed that it will receive the blood and cerebro-spinal fluid.

37. Drawings, photographs, casts, cultures of micro-organisms, and microscopic slides are valuable additions to a well written account of an autopsy.

38. A lesion in one part of the body will often suggest a careful search for a lesion in another part of the body.

39. Do not mistake the normal for the abnormal.

40. Squeezing the gall-bladder after the duodenum has been laid open, will often cause bile to pass out, and the papilla, the ending of the common bile-duct, can thus be demonstrated.

41. Remember that frozen sections of fresh tissue can be cut and mounted in a half hour to an hour.

42. Three hours is none too long in which to make a complete autopsy.

43. Be careful that the first rib does not scratch your hands when removing the tissues in that region. Therefore cover over the cut-ends of the clavicle and ribs with the skin flaps.

44. Blood makes a good glue for affixing labels, and the blood of a person dying from hydrocyanic poisoning makes a most excellent red ink which will keep for years without the addition of any preservative fluid.

45. Remember that after the brain has been removed that the fundus of the eyes can be removed by a circular incision posteriorly, without disfigurement. The inside should then be stuffed with dark colored wool or cloth.

46. In private cases you will be frequently judged of your skill as a pathologist by the neatness with which you sew up the body.

47. If you discover suspicious lesions always stop the post-mortem and report the case at once to the Coroner.

48. Remember in warm weather that the intestines are especially liable to undergo rapid decomposition when exposed to the air.

49. Remember that a railway train or cart may pass over the body and there be no abrasion in the skin more than a brush burn.

50. Remember that the color of organs is frequently changed when exposed to the air by the oxidation of the hæmaglobin. Also that the sulphide of iron frequently discolors organs after death, due to the sulphuretted hydrogen during decomposition precipitating the Fe. of the hæmaglobin.

51. The clavicle can be grasped and moved and the claviculo-sternal articulation thus readily discovered.

52. In removing the cord the following method may be used without disfigurement to the skin of the back part of the neck. Make a circular incision from the middle of the trapezius muscle of the one side, to the middle of the same muscle of the other side, using as the centre of the circle the external occipital protuberance. This will take you in the median line to about the second dorsal vertebra; then dissect away the skin with muscles attached, and elevate this flap with a tenaculum and draw the shoulders backward. A sufficient amount of space will be given to then remove the cord in the usual manner.

53. If the rectus muscle on each side be cut near its origin, in the direction of Poupart's ligament, the abdominal cavity will be much more thoroughly exposed to view than in the ordinary manner. First, however, examine with the finger for hernia.

54. And lastly be honest. Everyone diagnoses lesions during life which are not found at the post-mortem. Even after a most careful post-mortem it is often impossible to tell from what the patient died.

LARGE DOSES OF STRYCHNINE IN THE TREATMENT OF PULMONARY AND CARDIAC DISEASES.*

THOMAS J. MAYS, A. M., M. D.†

From quite an extended experience with the use of strychnine I feel convinced that this drug gives better practical results in the treatment of pulmonary and cardiac diseases than any other single remedy at our command, and it occurred to me that a short discussion of the principles which I have followed in its administration might be of interest to the members of this Society.

It is needless to tell you that strychnine has a more powerful stimulating influence over the nervous system than any other drug in the materia medica, and that besides its general action it has a special influence on the nerve supply of the lungs, heart, stomach, intestines, etc. Now, without going into details, it is my belief that many affections of the lungs and heart are fundamentally dependent on disorder of the nerves which supply these organs, and that the curative effects of this agent in these diseases rest largely on the power which it has in correcting this primary aberration. Over and above this it has been recently shown that strychnine also has the faculty of multiplying the corpuscular elements of the blood, and is therefore, like iron, a blood-builder. A combination of such valuable properties in a single agent makes it apparent on theoretic grounds alone why strychnine should possess such a beneficial therapeutic effect in the diseases which we are here considering, since anæmia is one of their most common complications. In spite of these desirable qualities I believe that we often fail in obtaining its best effects by giving it in doses which are entirely too diminutive. I do not mean to say that strychnine should be given in large doses in every disease to which it is applicable, for such a statement might lead to great harm if it were practically carried to its legitimate end, but these remarks pertain only to those diseases to which reference is made in this paper. The custom of giving strychnine in doses of $\frac{1}{60}$ or $\frac{1}{50}$ of a grain I have discarded long ago, for I feel satisfied that such amounts are comparatively worthless. It is very rare that I begin with a smaller

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dose than $\frac{1}{75}$ of a grain, and more often with $\frac{1}{30}$ of a grain, and then gradually increase in an ascending scale until I touch the limit of toleration. Strychnine is peculiar in this respect. The length of the ascending scale from the effects of such a dose to a point where the physiological action of the drug begins to develop itself is usually very long, and during the time that this is traversed by the therapeutist a free opportunity is given in which to obtain the full stimulant action of the drug in gradually increased doses. I usually incorporate one grain of strychnine with phenacetin, quinine, etc., and divide the whole into thirty-two capsules, and give one capsule four times a day. This lasts eight days, and then $\frac{1}{8}$ of a grain more of strychnine is added to the whole quantity, which is thereafter increased $\frac{1}{4}$ of a grain every eighth day until the limit of toleration is approached. This varies very much in different individuals. I have a number of patients under my care at the present time who are taking $\frac{1}{15}$ of a grain, and four who are taking $\frac{1}{7}$ of a grain, and one who is taking $\frac{1}{6}$ of a grain four times a day. Most of these patients have been taking the drug from three to seven months continuously. I have seen patients, however, who could not endure more than $\frac{1}{30}$ of a grain four times a day. So soon as the patient begins to show evidence of intoxication the dose is reduced to a point where this is no longer manifested, and then maintained there permanently or again increased after some time. It is possible, however, and this should always be borne in mind, that the dose which was toxic once may in time be taken with impunity. This would seem to show that the poison line of strychnine recedes, and that the drug establishes a certain degree of tolerance for itself. Yet I have met with one case where the administration of the drug was broken off for almost two weeks, and then, on resuming the same dose which was previously taken, marked rigidity of the lower limbs followed after the first two doses.

What, if any, are the untoward effects of strychnine when given in such large doses? So far as I know there are none except its occasional tendency to produce diarrhœa; but at the very worst I do not believe this proneness is very pronounced. In my earlier acquaintance with it I fancied that it aggravated the diarrhœa which is such a frequent accompaniment of phthisis, but my later experience fails to confirm this, since I have seen cases of intestinal tuberculosis get well when strychnine was given in combination with morphine and oxide of zinc. It has been asserted that it causes albuminuria by reason of the high blood tension which it brings about. Of this I have not the least evidence, having frequently examined the urine of patients to whom strychnine had been administered in such large doses for more than a year.

I will now briefly consider in greater detail the mode of giving strychnine in each disease to which it is believed to be applicable. In *asthma* I usually begin by introducing $\frac{1}{30}$ of a grain under the skin, and administer about $\frac{1}{30}$ or $\frac{1}{25}$ of a grain by the mouth four times a day, and gradually increase this in the way above indicated. Hypodermatically it is given once a day or every other day, and if possible in the evening, until there is an approach to the toxic effects of the drug. Suitable doses of phenacetin, quinine, capsicum, and ammonium muriate will enhance its action. So far as my experience goes strychnine must be regarded as the most powerful adjuvant in the treatment of asthma, although we must never lose sight of the importance of treating the diathesis or exciting cause on which the disease often rests, and also of improving the general nutrition.

Bronchitis, whether acute or chronic, is very much benefited by strychnine. It checks the cough, diminishes the expectoration, improves the appetite and puts to one side the whole constitutional relaxation and feebleness frequently present, especially in the chronic form of this disease. It must be given in ascendant doses, and may be combined with benefit with the syrup of hypophosphites or hydriodic acid, or with both.

Strychnine is one of the most useful agents in treating acute pneumonia, whether this is of the croupous or catarrhal variety. I usually begin by injecting $\frac{1}{30}$ of a grain every three or four hours until symptoms of intoxication begin to show themselves. This I have seen to take place on the second and third day of the disease. If the case is a mild one it will suffice to give $\frac{1}{30}$ of a grain every four hours.

I know of no disease which is more eminently benefited by strychnine than pulmonary consumption. Indeed, as a rule, it seems that sufferers from this disease are capable of taking this drug in extraordinary large doses. I have a number of phthisical people under my care at the present time, both in hospital and in private practice, who are taking over half a grain of it a day—a dose which had been reached by a gradual increase of a smaller one. For a more complete description of the use of strychnine in primary pulmonary diseases I would refer you to a paper of mine on this subject, contained in *The Medical News* of July 22, 1893, and the remainder of this paper will be devoted to cardiac and cardio-pulmonic diseases.

In recommending strychnine as one of our most valuable cardiac stimulants a fear may spring up in the minds of many that this drug is put forward for the purpose of displacing digitalis—the old and well tried heart-tonic. That such a suspicion is not altogether groundless when held by those who prescribe digitalis for almost every phase and form of heart disease they meet, is true; but he who looks the question of cardiac therapeutics squarely in the face, feels, although more perhaps from an instinctive than from a scientific standpoint, that the action of digitalis is not interchangeable with that of strychnine, and that each fulfils its own peculiar indication in the treatment of diseases of the heart. Although we may not be able to draw a rigid line of demarcation between the behavior of these two agents, we have experimental evidence to show that digitalis acts more on the muscular and less on the nervous structure of the heart than strychnine. My own experiments demonstrate that digitalis enhances or increases the irritability of the heart muscle, while strychnine depresses or reduces it; and that that the former arrests the heart in systole while the latter arrests it in diastole. It is my belief that the action of these drugs is as dissimilar clinically as it has been shown to be physiologically, and that strychnine is principally indicated in these diseases of the heart which are dependent on a disturbance of innervation, as for example, in simple cardiac weakness and in irregularity and intermittency of its pulsations, while digitalis is preferable in cases where there is a want of compensatory power in the heart muscle, as in valvular incompetency.

Bearing in mind this difference, strychnine should be prescribed when the nerve supply of the heart is enfeebled through auto-intoxication such as is found in the post-paralysis of diphtheria, scarlatina, measles, smallpox, influenza, whooping-cough, and in poisoning from alcohol, lead, mercury, etc.

Irregularity and intermittency of the heart's action are frequently benefited by the administration of large doses of strychnine, and more often than not, do we find that digitalis is utterly useless in such cases. Sometimes the irregularity will remain even under the influence of strychnine, but the symptoms which are dependent on or are a part of this condition, such as pain in the precordium, orthopnœa, oppression of the chest, will improve or disappear, especially if suitable evacuant remedies are used at the same time. This whole disorder I regard as being probably due to a want of power in the discharge of nerve-force of the heart or rather, perhaps, to a lack of nerve-control over the discharge of the muscle force of the heart. This weakness of nerve-power is not only marked in the heart, but it is also apparent in the lungs and frequently manifests itself, especially in elderly people, in a co-existent œdoma of the bases of both lungs.

Moreover, there is often found an irregularity or intermittency of the heart's action in severe seizures of asthma, and I know of nothing which will remove this accompaniment, as well as the original disease, as strychnine in large doses promptly administered, both hypodermically and by the mouth.

Angina pectoris is another paroxysmal disease in the treatment of which strychnine in large doses stands pre-eminent.

Again, digitalis is always regarded as the sovereign remedy in the treatment of valvular diseases of the heart and their sequences, but there comes a period in the life history of every such affection in which digitalis, no matter how much benefit was derived from it before, proves utterly useless. This leads of course to disappointment, and often gives rise to serious suspicion concerning the utility of this important agent. The fault lies, however, not in the drug, but in its improper application. It has done all that

could be reasonably expected of it. It stimulated the heart muscle to renewed activity after the valvular rupture occurred. It aided in developing its muscular fibres and restored its former power; but now, for some reason or other, the nervous energy of the patient begins to flag, and the heart-walls commence to relax in spite of the muscular hypertrophy which is present, and digitalis no longer possesses the spurring properties which it once had. The blood dams up in the left ventricle and auricle, the pulmonary circulation becomes impaired, œdema and congestion of the lungs follow, and death is threatened by way of the pulmonary organs. It is at such a time, when digitalis fails to counteract these many incidental complications, that strychnine steps in and shows its superior value as a tonic to the waning nerve energy of the heart and lungs.

PRIMARY PERINEAL OPERATIONS.

MORDECAI PRICE, M. D., PHILADELPHIA.

There is no subject in obstetrics or gynecology that demands our immediate attention more than vaginal tears after delivery. These may be of serious nature, demanding of the attendant skill and training in this branch of our obstetric art but few men have attained, but one in which all must operate. No one can be excused for leaving the work for some one else. It is his to do and at once. If he can get help all the better, but do the operation he must. It is a very common mistake of men attending women in childbed, no matter how difficult or complicated the case may be, to consider his work complete as soon as the child and placenta are delivered and the woman washed and made comfortable in bed. He makes no effort to find out how much damage or injury has been done to uterus, vagina or perineum. He orders a vaginal douche and leaves his case to Providence. Fortunately for the poor woman, Nature does wonders for her restoration.

In bringing to your notice this subject, I desire only to present my own experience and to emphasize the importance of careful vaginal examinations after labor. Injury may occur at any time from the dilatation of the cervix to the expulsion of the child. The cervix may be torn to the opening of the peritoneal cavity; the vagina torn from the cervix, or down the median line and, including the bowel, from the cervix to the sphincter; or the line of rupture may be to the side in the sulci, and extend very deep into and including the sphincter. Most of the sulci tears are inside leaving the fourchette in its natural position and without careful examination after delivery, no one would suspect the perineum had been injured. Yet some of the worst injuries to the pelvic floor are altogether inside, even the bowel and bladder may be opened without any tear on the outside. Then we may have the vagina torn transversely as the head crowds the walls before it in labor. These tears may extend through the entire septum to the bowel, and there are cases where the child has been delivered through the bowel. So you can comprehend the terrible accidents to the soft parts of the mother in labor are to be in the first place avoided if possible and if not, the immediate repair of the injury is demanded as soon as the labor is finished and before the woman is placed in bed for rest.

These accidents depend upon the violence or amount of force used in the delivery, or the conditions of the parts at the time of labor, or to deformity of the mother, size of child or the duration of the delivery. Under this last head will come unavoidable delays and unnecessary haste in the delivery of the child. What might be delay in one case would not be in another, as the conditions of both mother and child may be entirely different. All these conditions must be considered by the attendant who conscientiously does all he can for his patient.

In labor nature should have her own way so far as is consistent with the safety to both mother and child. To treat in any other way than this would be to encourage the very accidents we most

anxiously wish to avoid. Many, probably the larger number, of accidents occur in the first labor, and in women about the midway period of menstrual life. These do not bear the pains and suffering incident to maternity with the fortitude of their younger sisters, so that age of the mother in primiparæ should have an influence in our care of the case.

We will take for granted that all has been done to prevent the accident we now propose to repair and there only remains for us to do the work in a most workmanlike manner so as to get the best result.

Immediately after delivery in a patient with ruptured cervix or perineum, the patient should be so placed as to give the best light and be convenient and comfortable to the operator; the parts injured examined and carefully washed with hot antiseptic solution. If the injury be of the cervix, with the aid of a Sims' speculum, the parts should be carefully coaptated with silkworm-gut sutures, shotted and the parts again washed with an antiseptic solution—the best in my opinion being bichloride of mercury. The stitches of silkworm-gut may be left in place with perfect safety until the mother is ready to leave her bed. The perineum should be examined in the same careful manner and closed with the same material (silkworm-gut.) To prevent the frequent handling of the parts during recovery, the stitches can remain for weeks. If silk or thread be used, the stitches act as irritants after the third or fourth day, and should be removed. This is the best way to close a ruptured perineum.

If the rupture is completely through the septum and sphincter, then the sutures are placed a little differently but with the most painstaking care, for in a case of this kind failure means great suffering to the patient and discredit to the attendant. When the rupture extends through the bowel, the finger should be passed into the bowel as a guide and the first stitch should be at least three-quarters of an inch above the tear in the bowel and from that point down four stitches to the inch inserted. Entering the needle a quarter of an inch from the torn ragged edge, including as much tissue as possible in the grasp of the needle, with the point of the needle in the direction of the opposite side of the operator, emerging at the very bottom of the tear and then entering again at the same point, pass backward at the same angle to the opposite side and emerge at the same distance from the torn edge. If the tear is through the bowel, the stitch should come as near the torn edge as possible. If the tear is ragged, take more of the margin so as to have the stitches as near in line as possible, and as you approach the external margin you will have to place your stitches so as to include the sphincter. Three to four stitches on the outside will greatly help to perfect the operation. The sulci tears should be closed in the same careful manner. The torn surfaces should be washed with hot antiseptic fluid, or at least with hot water, and carefully dried before shotting the silkworm-gut. If all the discharges are removed and the stitches closed with care, remembering that we will have more swelling in primary operations than in the secondary, we will have the most gratifying results. I have never had one fail to unite by first intention. Use care in doing your work and you will never regret primary closure of the tears in childbed, and will be the means of saving many valuable lives from sepsis and the helpless conditions following culpable neglect of the first principles of obstetric and gynecological surgery, as laid down by the best teachers on this subject.

Case No. 1.—Mrs. W., twenty-three years old; married. Patient of Dr. Judd. When married was of slender build and rather a delicate girl. She became pregnant soon after marriage and began to increase in flesh, and at time of delivery weighed some forty or fifty pounds more than at time of marriage. The labor was an exceedingly difficult one and rather protracted. No instruments were used. The soft parts dilated slowly and imperfectly; the child was a tremendous boy with a well-formed, hard head but slightly reduced by the moulding process. Two fingers filled up the external outlet when the head was well down in the pelvis. Dr. Judd fully expected a torn perineum and sent a messenger asking my assistance in its repair. The delivery was already accomplished when I arrived and the perineum was torn clear through both internal and external sphincters, the full length of my finger. Every effort was made by her attendant to prevent injury, but it was one of those cases

where nothing can save the perineum; nothing dilates as it should and when the head passes it must do so over torn tissues. Owing to her great increase of flesh it was impossible, no matter in what position we placed the patient, to bring the torn parts into view. A long perineal needle threaded in the usual manner to place the silkworm gut sutures was used. In this case the sutures had to be placed entirely by the sense of touch, the needle carefully adjusted in the needle holder, needle and holder were passed up into the vagina, and the forefinger of the left hand used to find the vaginal surface and direct the point of the needle as far back of the torn ragged edge as possible so as to bring as much vaginal tissue in the grasp of the suture as possible. Then passing the guide finger of the left hand up into the bowel and passing the needle directly through to the bottom of the tear, which at this point only extended to the walls of the bowel, I put as many sutures as possible at this point and as I came down included the margin of the bowel clear to the sphincter, as in the Emmett operation for complete laceration.

One of the secrets of success in this operation is the use of plenty of tissue. The ragged vaginal wall does not need to be trimmed, but closed just as it is found. In shotting the sutures we must remember the parts are torn, not cut; that they have been greatly injured and bruised in the travail; that in the shotting of our sutures we must use great care so as not to make too much constriction of the tissues. Nine silkworm-gut sutures were used in this case and were removed on the eleventh day. Patient's bowels were kept soluble daily. She made a most beautiful recovery, the perineum uniting in every part. Dr. Judd informs me her condition afterward was most satisfactory.

Case No. 2.—While this was a complete rupture of the perineum, it was entirely different from the one just reported. Patient of Dr. Rishel. Nineteen years old, married, suffering from chronic Bright's disease, pregnant with her first baby. When the Doctor was called she was in active labor and in convulsions. The cervix was sufficiently dilated for him to apply the forceps, which was done at once with the patient under chloroform. A messenger was sent for me, but I arrived after the delivery. The Doctor said the patient had been torn but he had not made an examination. His entire attention had been given to the desperate condition of the mother. I carefully examined and found the perineum torn through, and up the bowel for fully an inch above the external sphincter. In this case the wound could be easily exposed and the stitches placed. Seven were used—two above the rectal tear, five in the rent in the bowel and to coaptate the sphincter. Patient recovered very slowly from the convulsions. The wound healed leaving a slight fistula for several days and then closed entirely.

At times one or more of the stitches leave a fistulous tract but they soon close without help. I think the trouble in this case was from the advanced Bright's disease, which left the patient in a debilitated condition that did not favor rapid healing. The stitches were removed on the twelfth day and everything appeared well closed. I have no doubt the condition of her kidneys will prove too much for her recovery.

All tears in the perineum, unless a mere scratch, should be closed carefully at the time of the injury. They give but little trouble to the attendant and cause the patient very little pain as the parts are in a benumbed condition. But if left only a few hours, to close them without ether would be most cruel and the probability of immediate union not so good. All this work should be attended to at once, the instruments necessary—a small needle and thread—can be found in any house, but the best way is to have such instruments with you. Silkworm-gut for sutures and perforated shot and a shot compresser, which is also a needle holder, is the best, requires but little room and can be obtained at slight expense.

Not In It.

He has no enemies, you say.
My friend, your boast is poor.
He who hath mingled in the fray
Of duty that the brave endure
Must have made foes.
If he has none,
Small is the work that he has done.
He has hit no fraud upon the hip;
He has shook no cup from perjured lip;
He has never turned the wrong to right;
He has been a coward in the fight.

—*Selected.*

A SERIOUS GUN-SHOT WOUND OF THE THIGH WITHOUT HEMORRHAGE.

A. O. STIMPSON, M. D., C. M., THOMPSON, PA.

I do not offer this case on account of its being of special interest in a surgical point of view, but on account of its being unique in its occurrence and attended by no serious sequences. On the 11th, day of August 1893, at 5 o'clock P. M., a boy 11 years of age was brought to my office for treatment by his father. While he and several other boys of about his own age, were amusing themselves shooting an old gun, with the ramrod as a projectile (to see how far up in the air the discharge would propel it) the gun was accidentally discharged prematurely and the ramrod was forced through this boy's leg, to one half its length. The leg was transfixed by the ramrod at about 5 inches above the knee joint. The boy said that he was sitting on a stone wall, holding the gun between his knees while loading it, and the gun accidentally slipped downward so that the hammer caught on the edge of a stone with force enough to explode the cap. Strange to say, the ramrod passed through the leg between the first and second layers of muscles without injuring any important blood vessels or nerves or even lacerating the tissue.

I suggested giving the boy chloroform before attempting to extract the ramrod, but as both the boy and his father objected to its employment I got along without it.

After oiling the piece of wood thoroughly with vaseline, with a sudden jerk I pulled the ramrod through his leg in a downward direction, after placing his heel up on a chair. No hemorrhage followed its extraction and after treating the wound with antiseptic dressing and syringing it out daily for three consecutive days with a 10 per cent. solution of carbolic acid, the wound readily closed up leaving no soreness or lameness afterward.

NASO-AURAL DIPHTHERIA; WITH THE REPORT OF A CASE.

LAURENCE TURNBULL, M. D., Ph. G., PHILADELPHIA, PA.

Diphtheria. An endemic or epidemic infectious disease of specific origin, attacking the mucous membrane of the nose, pharynx, larynx, and ear, and some other parts of the body.

The ear may become affected by way of the Eustachian tube, and an acute otitis media may develop with perforation of the membrana-tympani, with even necrosis of the mastoid bone. An otitis interna is also sometimes observed.

The question of the identity of the two processes, croup and diphtheria, from a pathological standpoint may be considered to be settled in the affirmative so far as to justify the assertion that true croup, or membraneous laryngitis, may be one form of diphtheria.

The etiology of the disease as to whether it is produced by bacteria is no longer in doubt.

It is of this disease in the ear we write —a case in which the diphtheritic membrane spread to the nasal passages, the Eustachian tubes, and the middle ear. It was accompanied by a gray deposit and a fetid brown discharge. The muscles of the soft palate and ear are frequently affected with paralysis in this disease as a secondary result.

I. N., a girl aged fifteen years, in November, 1891, suffered with deafness—five or six years previous she had suffered a similar attack. She recovered from the attacks and had no earache until about February 26th, 1892, when she complained of most severe pain in the ear. The family physician was called in who diagnosed "an abscess in the ear," but a few days afterwards he thought it had passed away. An attack of diphtheria followed, with abdominal as well as ear

trouble. The girl became extremely ill, and the physician in charge desired consultation with a specialist. She had been removed to Atlantic City, but became worse and the father requested me to go down with him the next day.

He stated that an endemic of diphtheria was caused by some break in the drain, or was brought into the house by one of the children in the spring of 1891. The malignant sore throat had occurred several times in the family, recurring in some persons. The eldest boy, the father and the mother, and also a domestic had follicular sore throat but no membrane. Four of the children had the membrane fully developed, and a one year old baby had a slight attack. All the children, except the daughter who was taken to Atlantic City, recovered without any bad effects.

The treatment mainly consisted in the use of a solution of peroxide of hydrogen diluted with water, made fresh and kept in a cold place, and used frequently. Internal treatment with calomel, one and one-tenth grain every two or four hours. The treatment proved very successful as all the cases recovered. The drainage was completely overhauled, the traps etc., kept flushed with a solution of sulphate of iron, and the whole house was fumigated.

When I visited the young girl at Atlantic City, March 6th, 1892, I found her under the care of Dr. Marvel, who had treated her most judiciously by the free use of tincture of aconite, etc.

She was in bed, her head was twisted to one side, suffering with intense pain, and it was with great difficulty, owing to the deposit of the membrane along the canal, that I could make an examination of the ear, as the auditory meatus was very tender and swollen. When seen there was active congestion of the membrana-tympani with a deposit of fluid.

After free use of a 20 per cent. warm solution of cocaine, I perforated the membrana tympani twice and allowed the fluid in tympanum to escape and then incised the swollen auditory canal.

Temperature during preceding day had ranged from 100° to 104°. When I left in the afternoon she was much relieved and her temperature and pulse were much reduced.

Not hearing from the doctor for some days, I addressed a letter to him on the 8th, and received a reply which I give:

Atlantic City, March 10, 1892.

"Miss N. seems much improved. The temperature range has been only one degree above normal. She seems very bright and full of fun.

"Unless something at present unforeseen develops, I think she is to have a speedy convalescence. The ear has not given her much pain or concern since the operation, though it is yet considerably swollen in the *external meatus.* I am today using the lime water through a cone of absorbent cotton in the ear; there has not been any suppurative discharge—hence I have not thought it worth while to use the bichloride solution.

"Should any change for the worse take place I will notify you. I am indeed greatly pleased with the prompt and palliative change in her condition."

THE HEIGHT OF MAN.—A French statistician has been studying the average heights of men at different periods of the world's history and has reached some alarming conclusions. The recorded facts extended over nearly three centuries. It is found that in 1610 the average height of men in Europe was nearly 5 feet 6 inches. In 1790 it was 5 feet 6 inches. In 1820 it was 5 feet 5 inches and a fraction. At the present time it is 5 feet 3¾ inches. It is easy to deduce from these figures a rate of regular and gradual decline in human stature, and they apply this, working backward and forward, to the past and to the future. By this calculation it is determined that the stature of the first man attained the surprising average of 16 feet 9 inches. The race had already deteriorated in the days of Og, and Goliath was quite a degenerate offspring of the giants. Coming down to later time, we find that at the beginning of our era the average height of man was 9 feet, and in the time of Charlemagne it was 8 feet 8 inches. But the most astonishing result of this man's study comes from the application of the same law of diminution. It is conclusively shown that in 4000 A. D., the height of the average man will be but 15 inches, and in a few thousand years more the end of the world will come, for men will get so short that there will be nothing left of them.—*Buffalo Express.*

SOCIETY REPORTS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of September 27, 1893.

DR. T. J. MAYS read a paper on

LARGE DOSES OF STRYCHNINE IN THE TREATMENT OF PULMONARY AND CARDIAC DISEASES.

(See page 713).

DISCUSSION.

DR. LAWRENCE P. FLICK: This is too practical a subject to be permitted to pass without some discussion. There is no drug that has become more popular in recent years than has strychnine just in the class of cases to which Dr. Mays alludes. Whilst we have apparently empirically come to the conclusion that this drug is of very great value in these diseases, I do not know that I have seen a satisfactory explanation of why it is so. There is one peculiar result in the use of strychnine which gives somewhat of a clue to its manner of action. This was not mentioned by Dr. Mays. It is the marked increase of weight that occurs under the use of large doses of strychnine. I do not know of any drug which will produce this effect so rapidly and so satisfactorily. It seems to me to indicate that the real cause of benefit, after all, is possibly the increase of nutrition, and yet why this increase in nutrition from the use of strychnine? It is probable that its effect in stimulating involuntary muscles has a great deal to do with the result. The special action of strychnine is stimulation of involuntary muscles. This is true not only of the muscles of the heart and of the blood-vessels but also of the muscles of the stomach, intestines, etc.

In the treatment of tuberculosis, strychnine is certainly one of the most valuable remedies that we possess. It should be large doses. It, along with many other remedies which go to build up the nervous system and improve the nutrition, are really essential in the treatment of tuberculosis. When we use remedies which build up the nervous system, and with them use the germicides that have lately been introduced, we can obtain very gratifying results in the treatment of this disease which has hitherto been so discouraging. The use of strychnine and other stimulating drugs should be accompanied by the employment of such germicides as have shown themselves to be of value. I have seen recently reports of some excellent results with tuberculin and tuberculidin, and if these reports continue to come as they have, I feel that we can soon approach the treatment of tuberculosis with a great deal more courage than in the past.

DR. CHARLES WIRGMAN: I can give my testimony as to the value of strychnine in asthma. I have a patient suffering with severe asthma, the result of hay fever, taking one-twelfth of a grain four times a day. He is a man of relaxed muscular fiber and rather feeble constitution. He has had these attacks every autumn for some years. I began with one-sixtieth of a grain and increased to one-fortieth, and then to one thirtieth. Observing no toxic symptoms, I increased the dose to one-twentieth and finally to one-twelfth, four times a day, I think with decided benefit to the general nervous tone. I have never observed in this case or in others any accumulative effect of the drug. As far as its influence upon the pulmonary tract is concerned, I have observed no positive action, that is in the sense of an expectorant, but it certainly does increase the general tone so that a patient has more strength to expel the secretion which accumulates. The only symptom that might indicate a toxic action has been a slight amount of spinal irritation, but I have been inclined to attribute this to the semi-recumbent position which he has been compelled to maintain.

DR. S. SOLIS-COHEN: There is no question in my mind that large doses of strychnine can in certain cases be well borne for prolonged periods. In hysterical and other forms of aphonia, and in paralysis following diphtheria, I have frequently given as much as one-fifth of a grain three times a day for several days

in succession, having reached this dose by gradual increasement; and I now have under my care a man who has been taking one-tenth of a grain of strychnine three times a day for some two years, and who has at times for short periods taken even larger doses. This is a case of syringomelia with cardiac feebleness. But while I am sure from what Dr. Mays and others have reported, and from my own observations extending over many years, that these doses of strychnine can be well borne and are useful in certain selected cases, I am not one of those who believe that these large doses should be given to every case or to a large number of cases. Both in acute cases and when the drug is to be long continued, I have seen, as a rule, better results from what nowadays would be considered very small doses, namely, about one-sixty-fourth of a grain or one milligramme. The reason for that, I think, is quite clear. In some very interesting researches communicated by Mr. Hodges to the American Physiological Association at the last meeting of the Congress of Physicians and Surgeons at Washington, and in which the effects of exercise and rest upon the ganglion cells of the brains of bees and of sparrows were demonstrated, it was shown that during the periods of activity a certain vacuolation of the gray matter of the nerve-cells was produced; an absolute destruction of the tissue during the physiological process of nervous function. During the period of rest, repair takes place. Strychnine is an agent which above all others stimulates nervous function, and naturally in the process of stimulation of nervous function leads to destruction of nerve tissue. This is, of course, the absolute physical necessity; energy can not only be produced, whether in the body or out of it, by an arrangement of matter—a reduction of existing forms into less complex forms, with liberation of the energy locked up in the complexity of structure. Mr. Hodges also showed some spinal cells from a cat poisoned with strychnine, and called attention to the correspondence between vacuolation in the spinal cells of the cat from strychnine activity and the vacuolation in the brain-cells of bees and sparrows from normal activity; there is no doubt in my mind that the correspondence holds throughout. Strychnine adds nothing to the stores of energy of the patient. Its great usefulness in apparently giving strength to a weak man is due to the fact that it calls upon him for the exercise to the full of such reserve energy as he possesses. It stimulates the nerve-cells to their highest activity, quickly liberating the locked-up energy, and in so stimulating it inevitably uses up a certain amount of nerve tissue. If after this, sufficient rest is allowed, repair takes place, and takes place more quickly because the nutritive processes have been stimulated by the action of the drug. Now, if the amount of activity with concomitant reduction of nerve tissue caused by strychnine can be proportioned to the needs of the patient so nicely that we shall get the maximum of stimulation of the nutritional process and the minimum of expenditure of the patient's nerve tissue, it is evident that that is the proper point at which to stop. Pushing it beyond that, we may cause an unnecessary expenditure of energy and loss of tissue which has to be made up from the food and in other ways. The nicety of adjustment most beneficial is not to be expressed in figures; it differs with the patient and with the disease, and to reach it requires careful observation and good judgment. Still it is something that we should aim at and that every intelligent physician should be able to secure. The fact that we do not kill a patient by large doses of strychnine does not necessarily prove that we have done him good. The fact that a patient is not killed by a surgical operation does not prove that the operation was indicated in that particular case. It may have been or it may not. Dr. Mays has alluded to the tolerance finally produced to large doses of strychnine. In this lies, I think, the patient's safety. The nerve cells become habituated to it, and refuse to respond up to a certain point. It is the small excess beyond this point that is over the amount tolerated, to which the therapeutic effect is due.

In the treatment of acute pneumonia strychnine is unquestionably one of the best agents that we possess, given in proper doses. I have had occasion to observe at the Philadelphia Hospital, in patients side by side, the comparative effect of small and large doses, and while admitting all the difficulties in the way of drawing

conclusions from such comparisons, I am sure that the patients with small doses did at least as well as those who received large doses. I am not afraid to push strychnine up to one-half a grain, if necessary, and when the indication for such dosage exists. In Dr. Mays' cases I have no doubt that large doses were indicated, but in less skilful hands than Dr. Mays' I am sure the routine use of large doses might do harm, not by producing immediate death, but by gradually exhausting the nervous energy of the patient.

In acute cases the best method of administration of strychnine is by means of dosimetric granules. I use the word "dosimetric," not that there is anything magical in the term, but that it indicates the manner in which the granules are prepared. Strychnine arseniate in doses of half a milligramme ($\frac{1}{120}$ grain) can be given and repeated every fifteen minutes or half an hour until the desired physiological or therapeutic effect is produced. The administration can then be stopped, and, as the effect is often prolonged, need not be repeated until the next day. In some cases the nurse can be instructed to administer three or four granules—one granule at a time—at intervals of half an hour, and then none for three or four hours. Sometimes, after a patient has thus been given four granules ($\frac{1}{30}$ grain), the effect can then be kept up by a single granule twice or three times a day. As I have elsewhere published my views concerning the important place of strychnine in the treatment of affections of the heart, I will not now dilate further upon it.

To repeat what I more particularly desire to contribute to the present discussion, I believe that while strychnine is very useful in all the conditions described by Dr. Mays, the best effect can be obtained by limiting the dose to the smallest quantty that will produce the physiological reaction intended.

DR. MAYS: I do not know that I have much to say in conclusion. The remarks made by Dr. Flick with reference to the influence of strychnine on nutrition are very apropos. The reason that I did not allude to this was because I have discussed this part of the subject in the paper to which I referred. It is quite evident to my mind that Dr. Flick has had a plentiful experience with the use of large doses of strychnine, because, among other things, he notes the influence of this drug upon nutrition. This action is certainly remarkable. I have so often observed this gain in weight that it is a common thing for me to expect the patient to gain in weight if he gets strychnine in ordinarily large doses, such as I have spoken of. I do not know whether Dr. Flick is correct in saying that it acts upon the trophic nerves, However, there is strong evidence for believing that strychnine affects the trophic or nutritive nerves of the body and stimulates them, and in this way improves nutrition. I have seen remarkable gain in weight in experimental cases in which nothing was given but strychnine hypodermatically for a number of days. There was nearly always decided gain in weight in the cases that I have observed. I gave it in large doses.

In regard to the cumulative effect, I do not think that I have any observations in regard to the accumulation of the drug in the system. While I believe that strychnine acts like drugs that do accumulate in the system, such as atropine, digitalis, and strophanthus, yet there is a marked difference between the action of strychnine and the drugs mentioned. Strychnine does not have the profound effect upon the circulation that the other drugs have. We know that the cumulative effect of digitalis is due to the fact that elimination is checked.

I am sorry that I cannot agree with Dr. Cohen in regard to the benefit of small doses in many diseases, although I believe that some diseases are more easily influenced by strychnine than are others. I believe, however, that pulmonic and cardiac diseases, such as were only referred to in my paper, are less easily influenced by strychnine than are many others. It is especially so in asthma, angina pectoris, and the other pulmonary and cardiac diseases to which I have referred, for in them it is perfectly useless to give small doses with the idea of cure. You might as well turn a garden-hose on a Chicago fire as to expect to do much good with small doses in these diseases. I have tried small doses without any benefit.

In regard to the destructive action to which Dr. Cohen has referred, I can hardly

believe that strychnine in ordinary physiological doses can have a destructive influence upon the nervous system, although I can see how a large and poisonous dose could have such influence upon the nervous system. Indeed, we well know that atropine, digitalis, alcohol, and many other drugs in common with strychnine have such a disintegrating effect in toxic doses; but to say that in stimulant cases they have the same or even a similar effect is far from the mark. It seems to me to be a confounding of the physiological with the pathological effects of a drug. Although I administer strychnine in large doses, I always remain within the sphere of its stimulant action. In fact, I fail to conceive how any drug which improves the nutritive state of the body can at the same time have a destructive influence on any tissue, except in so far as it may enhance the physiological waste of the body, which in turn is compensated by an increase in its physiological repair.

CORRESPONDENCE.

SOME MEDICAL PHASES OF THE WORLD'S COLUMBIAN EXPOSITION.

To THE EDITOR:—Perhaps the greatest menace against the success of the World's Fair which has just come to a close, was the prospect of cholera which has for two years threatened to invade this country. An epidemic of a disease so deadly and so greatly feared, would have caused financial difficulties which in themselves would have reduced the number of exhibitors and of visitors. Still more would the dread of meeting infection in a crowd have acted to prevent a profitable attendance. As a nation, we must be thankful that the failure of so noble a commemoration has not been added to the disastrous consequences of an epidemic at any time.

The managers of the exposition had before them the sanitary problems of a city of several hundred thousand inhabitants, limited to an area of about a square mile. The water at the dead end of Lake Michigan is appreciably contaminated by the sewage of Chicago, Milwaukee and several lesser towns, with an aggregate population of two millions or more. This water would be especially unwholesome to strangers without even the partial immunity of habit and forced by the exertion of sight-seeing in the heat of summer to drink unusual quantities of fluid. Hygienic need and business acumen lent themselves to each other's service in solving that part of the sanitary problem which had to do with the water supply. At short distances through the grounds and buildings were erected large filters, and no one who drank water could fail to have impressed on his mind the fact that these filters removed all impurities including germs, but left the natural salts and gases in the water. Almost equally ubiquitous were fountains which dispensed mineral water by means of a penny-in-the-slot machine.

Equally imperative with the need for an abundant water supply was the demand for water-closets. This was met by an elaborate sewerage system which, however, did not require the expense of construction of a permanent system. The management has been severely criticised for allowing the closets to be made a means of revenue. Certainly it is not magnanimous thus to take advantage of the calls of nature, but, on the other hand, five cents is not a large sum to pay for the use of a neat toilet room with soap, water and towels, and at least half of the pay closets were associated with free closets, although the latter were made as inconspicuous as possible.

An emergency hospital with a staff of physicians and trained nurses and equipped with an ambulance, was a novel and commendable provision for the comfort and safety of the patrons of the fair.

Equally convenient and, happily, more largely used was the *creche* in the Children's Building, where a hundred babies and little children were daily entertained. A great many foolish parents said they could never think of checking their little darlings as they would a satchel and so lugged them about, a discomfort to themselves and a nuisance to everybody else.

Through the courtesy of the matron, I was allowed to inspect the rooms where the children were cared for. In the first room were cradles, cribs and swings full of babies and two or three were playing in a little enclosure. Most of the children were happy, a few were screaming with hunger owing to the brutality of their mothers who had failed to return hours after the time for nursing. As far as practicable, children who had been weaned were given their accustomed food, condensed milk, infant's food or prepared cow's milk. In many cases it was necessary to modify the unhygienic regimen to which the child had been subjected and to give the parents a little wholesome advice as to the capability of an infant's stomach. The older children were in a separate room from the babies and were fed in a special dining room. The *creche* was visible from the center of the building through huge windows which were crowded with faces, the spectators in front being pushed down by those behind so that their bodies were out of sight. Looking out on this mass of human faces through the bars of the windows I could appreciate the feelings of the caged animals in a menagerie.

Near the children's building was a well appointed drug store in charge of women pharmacists. This was at once an exhibit of women's work and a practical convenience. Under the same roof was a model hospital ward, diet kitchen and operating room. The last contained a glass topped operating table, a galvano-faradic switchboard and quite a complete stock of metal handled instruments, dressings and a steam sterilizer. The room was floored and walled with tiles and was a silent argument in favor of asepsis rather than antisepsis. One corner of the model hospital represented a children's ward, the rest a woman's ward, and a large doll in one of the beds illustrated the dressing for fractured jaw. In a cabinet were a number of dolls dressed in the uniforms of the various training-schools and outdoor nursing guilds of Chicago. The blue and white striped seersucker dress and mob cap predominated. The heavily frilled and starched abomination which does duty for a cap in most of the Philadelphia hospitals was not represented. The diet kitcheu was well appointed. Of particular interest was an appliance which made use of resistance to an electrical current to generate heat for cooking. The power was furnished from a lighting wire and a number of heat generators to fit different utensils were connected with a switch-board. These means of cooking are neat, convenient, prompt and—expensive.

In the Transportation Building there was little of medical interest barring doctors' buggies, one or two elaborate hearses and an ambulance car such as was used during the civil war. The last had on each side of the aisle four lengths of berths arranged in three tiers like those in some steamer state-rooms.

In the section devoted to charities and corrections in the Anthropological Building were a number of hospital exhibits. Models of iron beds, cases of bandages and dressings, photographs of nurses, house-staff and attendants, and of rooms; note-books showing the progress of the training schools were among the articles on exhibition. One hospital exhibited a large scrap book filled with blanks of all descriptions. Prescriptions and diet blanks, temperature charts, blanks for reporting deaths, cards for notifying relatives of the serious illness of a patient and passes were among the more useful minority of the blanks. The majority provided for the details in the routine of various departments of the hospital and for a good many emergencies as well. One can scarcely refrain from the suspicion that a hospital with so elaborate a system of red-tape must fail in some of the more essential functions.

Japan, Canada and the United States showed models of disinfecting ovens in use at quarantine stations. All were on the same general principle of a separate boiler-house, with steam conducted in pipes to a large air-tight building of brick and iron into which freight cars could be pushed and the baggage loaded upon them disinfected.

A Michigan sanitarium made an interesting display of gymnasium appliances and of life size and minature models of patients and nurses showing methods of bathing and massage.

Also in the Anthropological Building were exhibits of papier maché models, not only of the human subject but of various animals and plants. One large case was filled with bleached bones showing the

union of fractures. Another case contained a collection of dental specimens and there were interesting remains of bone disease.

One interested in craniology would have found much to engross his attention in the collection of skulls from Peru, the Cliff Dwellers and various American aboriginal tribes.

In the gallery were models and sections of the brain and cord, and apparatus for testing the acuteness of the senses and nerve conduction. Unfortunately, I saw these exhibits only in the evening when they were not in operation, but learned from notices that the tests were conducted on the European plan, ten to twenty cents for the simpler ones, fifty cents for a determination of the psychic power, the last charge including a number of items arranged as on a bill of fare.

Dr. Sternberg had a large number of photomicrographs illuminated by an electric light. Bacteria of various kinds are represented under high magnifying powers. Carmona's bacillus, bacillus acidoformans, Freire's micrococcus, bacillus cumculicida and bacillus racemosus and a number of others besides the usual stock pieces of tuberculosis, pneumonia and gonorrhœa were here shown.

In the gallery of the Manufactures and Liberal Arts Building, were exhibits of dental, medical, surgical, microscopical and veterinary instruments and of drugs. These exhibits simply reproduced the ordinary stock of well supplied dealers, but the fact that they were in charge of intelligent and courteous exhibitors afforded a refreshing contrast to the indifference displayed by the managers of industrial exhibits, who seldom took pains to explain their wares and often left them unattended.

In the agricultural section of the Government Building were preserved specimens and wax models of organs affected with tuberculosis, glanders, hog cholera, Texas fever, contagious pleuro-puemonia and rinderpest. There was a most realistic model of a poultry-yard with chickens dying of gapes, but the most valuable object lesson—on account of possible human infection—was a full sized model of a horse suffering from glanders and farcy. The look of utter wretchedness in the eye, the muco-purulent discharge from the nostril, the hard and suppurating farcy buttons were faithfully shown. It was a clinic of this interesting and rare disease without the danger of infection. The omniverous habits of some cattle were illustrated in a unique collection. Here were hair-balls from stomachs, enough to supply this article of the homeopathic materia medica for all time. A steel rake-tooth about four feet long was said to have been taken from a steer killed at Chicago for beef and, therefore, presumably healthy in spite of this feat in deglutition. A silver dollar, a watch chain, hair-pins, an open jack-knife and quantities of nails and smaller metal articles had been removed from the stomachs of other cattle. In a glass jar were nineteen pounds of stones, varying in size from that of a chestnut to that of an apple and representing the yield of one bovine quarry.

In the division devoted to the treasury department, the U. S. Marine Hospital Service made a creditable exhibit of ward and laboratory appliances.

The Smithsonian Institution, among other things, exhibited many skeletons and models of the internal arrangement of both vertebrate and invertebrate animals, showing the course of evolution. The comparative morphology of the human and the equine skeleton was well shown; as was also the formation of the limb bones, the latter illustrating a number of different quadrupeds, birds, tortoises etc.

Much more might be said in enumeration of the Columbian exhibits which appeal particularly to the consideration of the physician, both in multiplying examples and in giving details. I will close, however, by mentioning a little relic in the Louisiana State Building which suggests a pathetic story of a friendship unbroken by death. This relic was a little silver snuff-box found clasped in the hand of an English army surgeon, who was killed in the battle of New Orleans by a chain-shot, which pinned him to a tree. On the cover of the box was engraved "Captain Arthur Mabbitt to Richard Williams, M. D., 68th Light Infantry," At the doctor's feet lay the body of Capt. Mabbitt who had been killed by a mortar ball.

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Buffalo, N. Y.

THE MEDICAL AND SURGICAL REPORTER

ISSUED EVERY SATURDAY

ADDRESS

Care P. O. Box 843, Philadelphia.

HAROLD H. KYNETT, A. M., M. D.,
Editor.

RODERIC C. PENFIELD,
Publisher.

PHILADELPHIA.

TERMS:—Five Dollars a year, strictly in advance, unless otherwise specifically agreed upon. Sent three months on trial for $1.00.

REMITTANCES should be made payable only to the Publisher, and when in sums of Five Dollars or less, should be made by Postal Note, Money Order or Registered Letter.

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SATURDAY, NOVEMBER 4, 1893.

EDITORIAL.

MATERNAL IMPRESSIONS.

"Is it all right, Doctor?" "Is the baby marked"? is almost invariably the second question asked by a mother after delivery—the first being as to sex. The question is the result of the popular belief in the influence of maternal impressions on the fœtus *in utero*.

Physicians are divided on the question though few now accept 'impressions' as the causes of gross physical deformities.

As to the transmission of parental acquired characteristics the subject is more intangible and therefore more interesting. Dr. Andrew Wilson in a recent discussion, quoted in *Public Opinion*, says:

"The battle about heredity, and whether or not characters acquired by the parents can be transmitted to the offspring, proceeds merrily. Scientists are divided over this question. On the one hand, the disciples of Dr. Weismann deny the possibility of such transmission; while their opponents regard the handing on of parental acquired characters as not only a possible but a natural process of the vital economy. Dr. Alfred Russel Wallace, co-worker with Darwin himself, has lately placed on record a very valuable and singularly interesting suggestion regarding the influence on children's character of the parental mind. His contribution (published in *Nature*) tends to show that in the sphere of mental influence of parents on their offspring's character, at least, he is open to admit the validity of the "other side" of the hereditary question. If there is any reality at all in the instances Dr. Wallace records—he says rightly: "They seem to afford grounds for further investigation"—then the influence of the parents in regard to the transmission of ordinary acqu racters cannot surely be put out of court, as some biologists would maintain, as "entirely unsupported by any trustworthy facts."

Dr. Wallace's recital begins with the mention of an instance quoted by George or Andrew Combe in which the character of a child appeared to have been affected by the prenatal studies of the mother. This item becomes interesting in view of the fact that, after a persual of Dr.

Wallace's articles on the question of the inheritance of acquired characters, an Australian lady wrote him on the subject of the parental mind on the unborn offspring. Some of the details given by this correspondent with reference to her own experiences, and to those of another lady, will be read with deep interest by every intelligent person interested in the problems of heredity, and in what may fitly be called the romance of science. The first cases are those of the correspondent's own children. Her first child, a girl, is now twenty-two years of age. She exhibits a special aptitude for sewing, planing and cutting out. Before her birth the mother, passing to reside in a new country, had to plan and sew for herself. The girl has also a strong aptitude for history, which the mother traces to her own study of Froude. The girl's other tastes for art and literature are "distinctly hereditary." A second child, also a daughter, has marked literary tastes, and at six years of age, used to read and enjoy Tennyson's ballads. She is a B. A. of the Sydney University, taking her degree when barely twenty. Before her birth, the mother had interesed herself in literary pursuits. The third child was a boy. Prior to his birth, the current of the family life had changed. The mother had no time for literary studies, or other "studious pursuits," and her occupations were more mechanical in character than at any previous time. The boy "does not inherit the studious tastes of his sisters at all." He is intelligent and persevering, but prefers outdoor work or handicraft to study.

This most intelligent mother next passes to the experience of her friend in support of the idea that parental influences may be thus clearly and directly handed on to the children. This friend, before the birth of her eldest girl, took to the study and practice of ornithology, and did a good deal of bird-stuffing as well. At the age of three years the girl shows an intense desire to study insects and other animals, and later on, takes to dissecting them. This predilection for natural history studies still remains with the girl. The next child, a boy, exhibits a marked liking for medical and surgical studies, and often expresses the wish that he had been "made a surgeon." Prior to his birth, the mother, strangely enough, had nursed a friend suffering from an accident for three months. On the theory of prenatal influences, the nursing and surgical duties of the mother are accountable for the lad's strong bias toward medical studies. The third child, a girl, exhibits artistic tastes of unmistakable nature. She draws well and excels in artistic talent of many kinds." The mother's life, prior to her birth, is described as having been idyllic in character; her parents then "did nothing but fish, catch butterflies and paint them. At least," adds the mother, "my husband painted them after I had caught them, and mixed his colors." There there may be direct heredity here, of course. The fourth child is a "most prudent, economical girl, a splendid housekeeper, and a good cook, and will work till she drops, but has no taste for reading, but seems to gain knowledge by suction." Before the birth of this child, the mother had experienced many trials. Her husband fell ill of fever, and she had to nurse him without help of any kind. The family also sustained losses by floods. "I don't know how I got through that year," adds the mother, but I had no time for reading."

It may be said, and probably will be said, that the mothers are "only wise after the event" when all is said and done. But there is such a singular correspondence of the exact kind between the characters of the respective children and the occupations which engaged the mothers' attention prior to their birth,

that it is impossible to dispose of the cases thus related on the convenient supposition that the facts have been dovetailed into their places and made to fit the mothers' theory. Dr. Wallace remarks that materials must exist in family records and experiences for determining whether there is anything in the idea thus promulgated of parental influence on character."

TRANSLATIONS.

CONTRIBUTIONS TO THE STATISTICS OF MAMMARY CARCINOMA.*

The author, Dr. G. Dietrich, has collected from literature 110 cases, and gives a short history of each. Especially considered are 52 cases which occurred between the years 1872 to 1880, in Luck's clinic at Strasburg. Earlier statistics (Winiwater, Henry, etc.) show the disease to occur most frequently between the ages of forty-six to fifty years; the oldest patient was seventy-three, the youngest, thirty-four. 107 cases occurred in women, 3 in men (of these, one died of erysipelas; a second, two and a-half years after the operation, of inflammation of the lungs, and the third, after several months, from a return).

The history following the operation was unknown in 18; 10 died in the hospital.

75 women were married, 17 were widows and 14 were single. About nineteen per cent. had given birth to more than six children; and among 68, there were nineteen per cent. who had nursed more than six children; 12 patients had suffered from mastitis. The shortest time between mastitis and the development of carcinoma was (in 2 patients) three months; the longest period was thirty-eight years.

Trauma was ostensibly the cause in 10 cases; heredity in 6. The right breast was affected in 53, the left in 48 and both breasts in 2 cases.

Pathologically, the scirrhus variety was more often present; less often, the tubular or alveolar forms. Among 95 cases there were 4 in which the skin, or axillary glands seemed to be involved. The axillary glands were involved alone thirteen times; skin seventy-eight times, of which in 30 the process confined itself to skin only, while 58 were complicated with enlarged axillary glands.

Ulceration of the growth occurred eighteen times, adhesions to the pectoralis major twelve times, the first of this series having the cancerous cachexia, leading to the suspicion of internal metastases.

Most of the patients were in good condition for operation, which took place in the majority of cases about seventeen months after the disease had been noticed.

Five patients could not be operated on owing to metastasis, two were operated on although all axillary glands could not be entirely removed and both remained without any return of the disease, respectively eight and five and a half years.

In two cases the axillary vein was doubly ligated and excised. In one case a partial excision of the axillary vein and nerve, also the middle portion of the plexus brachialis became necessary and aside from a transient œdema there was no change of mobility or sensibility.

During the years 1872 to 1880, there were 44 cases with 9 deaths, while in 1880 to 1890, there were 104 cases with a mortality of 8 (7.6 per cent). Three died with erysipelas; 1 from croupus pneumonia and embolism of the lung; 4 from metastasis, *i. e.*, general carcinoma. During the last 9 years there has been no case in which erysipelas formed a complication.

In order to get a more accurate account of the 80 living out of the 95, the author took particular pains to communicate with the patients. He found at the end of September 1891, 28.7 per cent. or 23 living. In 11 the cure lasted 3 years without a return; 2 died 5 years after the operation, not of return but from an intercurrent disease. So that on the

* Translated for THE MEDICAL AND SURGICAL REPORTER by Marie B. Werner, M. D.

whole 13, or 16.2 per cent. might be considered definitely cured. Return of the disease was noticed in 45. Of these 13 were treated by operation, 28 in the first and 9 in the second half-year after the operation. Late returns (that is 3 or 4 years) were only noticed in 3 cases. (*Deutsch Zeitschr f. chir*).

ABSTRACTS.

PARALYSIS OF THE ARM FOLLOWING THE APPLICATION OF AN ESMARCH'S BANDAGE.

Dr. James Bell related, at a recen meeting of the Montreal Medico-Chirurgical Society, the history of the case, the circumstances being, in his experience, unique. A young woman, twenty years old, admitted to the hospital January 16th, with ankylosed elbow joint. The position was not a very bad one, being a little greater than a right angle. The history of the injury was as follows: On the 6th of last July she fell in a car, and, knocking against the wall, hurt her elbow. At the time she did not pay much attention to it; but after awhile, the joint having become stiff, it was thought necessary to call on a doctor. The latter attempted passive motion, which was partially successful, but the ultimate result was ankylosis in the above position. Excision of the joint was advised, to which she after awhile consented, and the operation was carried out in the ordinary way. It was noticed, after removal from the operating room, that she had no power in any of the fingers, and that even sensation was not normal. Owing to the hand being encased in dressing, no very accurate observation could be made for some days, but it was remarked that the fingers perspired profusely. At the end of the third day after operation, being anxious and unable to explain the paralysis (the operation was done sub-periostal, and he was sure no injury had been done the ulnar nerve, besides injury to the latter would not account for paralysis of all the fingers and muscles of the forearm), the dressing was removed, and the explanation was at once patent. The Esmarch had been applied in the upper portion of the arm, just above the belly of the biceps, and below the prominence of the deltoid, and it had been tied so tightly that the skin was blistered. There was consequently no longer any doubt as to the Esmarch being the cause. The whole operation only occupied forty minutes, so that the band altogether could not have been applied more than half an hour. Upon the discovery of the neuritis she was at once put under the care of Dr. Stewart. Motor paralysis remained absolute for three weeks. On the 21st, day the first sign of movement returned, being a slight motion of the thumb; and after about six weeks' treatment she returned to her home with almost complete power of the arm. Once movement began to appear, it progressed very rapidly. She was able to flex and extend the arm and fingers completely, though not with the full amount of power. There, however, was no motion deficient.

This case is very instructive and very important, in view of the frequency of the application of the Esmarch. It is interesting on account of its rarity. It was the first time he had met with the accident, and considering the number of operations he had seen in the last twenty years, and the recklessness with which the Esmarch had been applied in all sorts and conditions of patients, it seemed to him that this must indeed be a rare complication. It could hardly have occured had the Esmarch been applied in any other part of the body; but it is a lesson well worth bearing in mind.—*Montreal Med. Journal.*

Common Mistakes of Doctors.

1. To promise a patient that you will cure him.

2. To promise to call at an exact specified time.

3. To promise that the malady will not return.

THE LIBRARY TABLE.

BOOK REVIEWS.

A Text-book of the Theory and Practice of Medicine. By American Teachers. Edited by William Pepper, M. D. LL. D., Provost and Professor of the Theory and Practice of Medicine in the University of Pennsylvania. In Two Volumes. Illustrated. Volume I. Phila: W. B. Saunders. 1893. [Sold by subscription only. Price per Volume, $5.00]

Among the many books that have been recently written on the Theory and Practice of Medicine we know of none that is likely to meet with as much favor as this one that has been just offered.

Most of us realize that the day has passed when it is possible for any one man, no matter how eminent he may be, to offer to the medical world a work that will either meet the demands of the every day practitioner or equal the collected study, experience and labor of the many who are themselves recognized as specialists in their particular field of work. Such an array of talent has never been associated in an effort of this kind before in America.

That each of these forty-five articles are signed gives much satisfaction.

The care that has been taken in presenting the very latest methods of differential diagnosis of all diseases will be found of the greatest assistance to the general practitioner, as it will not be found necessary to consult any works more especially devoted to the subject.

The chapter on Hygiene by Billings, which includes a full discussion of disinfection, isolation and other principles of preventive medicine, together with the master-piece of Wood on Mental Diseases are deserving of special mention.

The following list of articles completes this volume.

Ephemeral Fever and Simple Continued Fever, Typhoid Fever, Typhus Fever, Relapsing Fever, Cerebro-spinal Fever, Influenza, Dengue, Miliary Fever, Milk Sickness, Mountain Fever; Septicæmia and Pyæmia and Leprosy, by *William Pepper*, M. D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine, University of Pennsylvania. Scarlatina, Measles, Rubiola, Small-pox, Vaccination, Varicella, Mumps, Whooping Cough, Tetanus, Actinomycosis, Anthrax, Hydrophobia, Trichinosis, Glanders, Foot-and-Mouth Disease, by *James T. Whittaker*, M. D., Professor of the Theory and Practice of Medicine, Medical College of Ohio, Cincinnatti. Acute Miliary Tuberculosis, Scrofula, Syphilis, Diphtheria, Erysipelas, Malarial Fevers, Cholera, Yellow Fever, by *W. Gilman Thompon*, M. D. Professor of Physiology in the Medical Department of the University of the City of New York. General Symptomatology of Diseases of the Nervous System, Mental Diseases, Functional Nervous Diseases, Syphilis of the Nervous System, Organic Diseases of the Spinal Cord and its Membranes, by *Horatio C. Wood*, M. D., Clinical Professor of Nervous Diseases, University of Pennsylvania. Organic Diseases of the Brain, Diseases of the Nerves, Diseases of the Muscles, Vaso-Motor and Trophic Disorders, by *William Osler*, M. D., Professor of Practice of Medicine, John Hopkins University, Baltimore, Md.

The Health Resorts of Europe. By Thomas Linn, M. D. London: Henry Kingston, 82 High Holbone W. C.

This is a hand-book of 300 pages, written by a distinguished American graduate in medicine, who is also doctor of medicine of the faculty of Paris. Dr. Linn has had a large experience in the health resorts of Europe, their mineral springs, of the climatic changes of these regions, he having been the physician of the famous bathing establishment at "Aix Les Bains and Marlioz" for a number of years.

The book is very much superior to the usual guide books, as these are written by non-professional people, and while they give correct information, they contain errors that make them useless from a medical point of view. All the resorts are written up in this work, while special attention is paid to the sanitation of each station, and its general hygiene.

We feel sure the book will be found useful both to the public, and to our professional brethren, who may not have had opportunity of making personal observations of these European resorts.

Dr. Linn quotes an interesting table lately drawn up, showing the cost of living in different countries. According to the same, it would appear that outside the expensive quarters in London, England is the most reasonable, next comes Switzerland, 4 per cent dearer; then Germany, 10 per cent. higher; then France, 15 per cent.; Italy, 20; and the United States (as represented by Pennsylvania); 24 per cent. higher than England.

The preface to the volume is from the pen of A. C. Samson, M. D., F. R. C. P., of London, England, a well known physician of that city, who very properly emphasizes the importance of invalids consulting their own medical adviser before going abroad in search of health. With the aid of this useful volume physicians can post themselves, and be able to give the proper advice to their patients.

Clinical Lectures or Abdominal Hernia. Wm. H. Bennett, F. R. C. S. London and New York: Longmans, Green & Co.

Review of Dr. Wm. H. Bennett's lectures on hernia are well worthy of the consideration of the medical profession. They cover the ground in a most thorough manner and indicate a thorough investigation of the subject by a surgeon who has derived his exper-

ience through service at the operating table. This work should be in the hands of the entire medical profession. Any one who is doing special work in abdominal surgery should read it and appropriate its many good points.

Cosmopolitan for November.

A magazine is usually satisfied with one strong feature for the month. *The Cosmopolitan*, however, presents for November no less than five very unusual ones. William Dean Howells gives the first of the letters of the traveller, who has been visiting this country, from Altruria. We have read Mr. Howells' impressions of the Altrurian; but in this first letter we have the Altrurians' impressions of New York, with some comments upon the government and society, calculated to awaken the most conservative minds. The second feature of *The Cosmopolitan* is the portion of the magazine given up to color work, no less than ten superb color illustrations being presented for the first time in magazine history, accompanying an article by Mrs. Roger A. Pryor on "Changes in Women's Costumes." The third feature is "American Notes," by Walter Besant, who was recently in America and is doing the United States for *The Cosmopolitan a la* Dickens. The fourth feature is by General Badeau on "The Forms of Invitation Used by the English Nobility." The article is illustrated by the fac simile of cards to the Queen's drawing-room, to dinner at the Princess of Wales, and to many leading houses of England. Finally, we have a new and very curious story by Mark Twain, called "The Esquimau Maiden's Romance." It is in his happiest vein and is illustrated by Dan Beard. The November number presents the work of many artists, among whom are: C. S. Reinhart, Otto Guillonnet, J. H. Harper, G. Hudson, Frank von Lenbach, George Wharton Edwards, F. Schuyler Matthews, Dan Beard, W. L. Sontag, Jr., F. G. Atwood, C. Hirschberg, J. Habert-Dys, August Franzen, Louis J. Read, J. N. Hutchins and Hamilton Gibson.

System of Diseases of the Ear Nose and Throat. Edited by Charles H. Burnett, A. M. M. D. In Two Volumes. Vol. 1, 8vo., pp 789. Illustrated Philadelphia: J. B. Lippincott Co. 1893. Price, Cloth, $6.00; Full Sheep, $7.00; Half Russia $7.50.

We are very glad to welcome this system of Diseases of the Ear, Nose, and Throat.

The entire system is comprised in two volumes, the first volume being devoted to the ear, the nose, and the naso-pharynx, while the second volume is occupied with the consideration of the diseases of the pharynx and of the larynx.

Men of acknowledged skill as specialists in this field of work, both in America and Europe, have labored together to complete this work.

The opening chapter on Anatomy and Physiology of the Ear and tests of Hearing by William Satier Bryant, A. M., M. D., is an exhaustive article and well worthy of a careful study; for on a correct knowledge of the structure very often depends the basis of sound, careful and well directed treatment.

The chapter on chronic Purulent Otitis Media by Charles H. Burnett says "Every endeavor should be made to check a chronic purulent discharge from the ear. There should be no fear to do this as promptly as possible, for so long as a chronic purulent discharge comes from an ear, the patient's life and hearing are in danger;" again he says, "that whenever an acute purulent ostitis media is properly treated it never becomes chronic"; again "no case of acute purulent inflammation will become chronic, *no matter what its cause*, if properly treated at the outset."

Possibly mention should be made in passing, of the articles on Foreign Bodies and Osseous growths in the External Auditory Canal, including neoplastic closure by Sir William Bartlett Dalby; Acute Rhinitis by Dr. F. H. Bosworth, and Diseases of the Accessory Sinuses of the Nose by Dr. Joseph Bryan.

The book contains an unusual number of illustrations, some of them colored. The publishers are deserving of much credit for the quality of the paper and the good press work exhibited.

Diseases of the Rectum and Anus: Their Pathology, Diagnosis and Treatment. By Charles B. Kelsey, A. M., M. D. Fourth Edition, revised and enlarged: With two chromo-lithographs and one hundred and sixty-two illustrations. Published by William Wood & Co., New York.

That this well known text-book has reached its fourth edition certainly demonstrates its value and the appreciation in which it is held by the student and practitioner.

Before allowing this edition to come before the profession, there has been incorporated in it and whatever of value has been added to our fund of knowledge by the labors of others in the same line of work. Dr. Kelsey certainly deserves much praise for the creditable and masterly manner, in which he has performed his task.

The book contains eighteen chapters. The chapter on "Fistula" is well worth the cost of the work. "Hemorrhoids" is another good chapter, fifty-three pages are devoted to their consideration. Prolapse and invagination are studied as four distinct varieties. 1. Prolapse of the mucous membrane alone. 2. Prolapse of all the coats of the rectum, including, when the disease is of sufficient extent, the peritoneum. 3. Prolapse of the upper part of the rectum into the lower, or invagination. 4. Invagination in the continuity of the intestine.

Under the head of non-malignant growths of the rectum and anus are included polypus, vegetations, condylomata, benign fungus, fibromata, lipomata, enchondromata, and the various forms of cysts. The many different varieties of non-malignant ulcers which are met with at the anus and within the rectum, are classified from the standpoint of etiology, into the following groups: 1. Traumautic. 2. Catarrhal. 3. Tubercular. 4. Scrofulous. 5. Dysenteric. 6. Venereal.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISTON J. MORRIS, M. D.

THE NEW YORK JOURNAL OF GYNECOLOGY AND OBSTETRICS

for October.

Dr. John N. Upshur contributes an article on

Reflex Bladder Troubles.

The author considers the most common cause of vesical troubles to be some lesion of the uterus, affecting the bladder through reflex sympathy, although he fully recognizes other agents, such as urethral caruncle, seat worms, etc. Sometimes great vesical distress will be found in very young girls even at the age of three or four years, due to acid urine, caused by eating too many sweets. This form of trouble is not always confined to children, as a too acid urine, or one containing an excess of solid constituents, especially the latter, may give rise to vesical distress, most intense in character and attended by pain in the back and down the thighs, weight in the lower part of the abdomen, with frequent calls to empty the bladder, and may even give rise to a suspicion of uterine disease. The existence of fissure or hemorrhoids may sometimes cause great vesical distress, but as soon as these affections are discovered as the cause, the indication for relief is very plain. Pressure from the gravid womb in the latter stages of pregnancy when many children have been borne, is a common cause of vesical distress. Another class of cases is found in which both centric and excentric influences are at work, as for example, the woman who for some reason retains her water too long after the call to void it, causing over-distention of the bladder, which in time causes retro-misplacement of the womb, and results in permanent debility of the sphincter and detrusor muscles of the bladder, with inability to retain urine for a long time. The calls to empty the bladder are frequent, unsatisfactory and incomplete, the residual urine becomes ammoniacal and acts as a local irritant; secondarily there comes a reflex influence from the misplaced womb, first because it is dragging on the bladder, and secondly because, being misplaced, all of the ills due to malposition are liable to occur, and many do coincidently exist, and thus the reflected influence from a diseased womb adds to the trouble of a debilitated bladder.

In regard to the treatment, the author advocates the use of some one of the alkaline diuretics in case the urine be found to be too acid. He strongly condemns the use of harsh injections into the bladder, especially when used empyrically, and particularly when the agent is nitrate of silver. The treatment is too painful and is liable to aggravate the trouble. The cause of the trouble must be located. The author has found that when gastric derangement was the cause, resulting in an acid, offensive urine, with pain in voiding, the benzoate of ammonia, gr. xv, every two, four or six hours, will sometimes afford very prompt relief or resort may be had to some other agent which will so modify the gastric condition as to produce a bland and sterile urine. When all else fails, resort may be had to drainage either by a self-retaining catheter, if its presence in the bladder can be borne, or by paralyzing temporarily the vesical neck by such extreme stretching as to permit constant dribbling, the person being for the time protected by wearing a nicely adjusted urinal; or by an artificial vesico-vaginal fistula.

The other papers in this month's issue are: "Congenital Dilatation of the Urethra," by W. H. Baker; and "The nature of Shock," by Dr. Eugene Boise. [As this paper is practically the same as one published by the author in The Annals of Gynecology and Pædiatry for October, it will be reviewed in connection with that journal.—ED.]

THE ANNALS OF GYNECOLOGY AND PÆDIATRY

for October.

Dr. Eugene Boise contributes an article on

The After-treatment of Coeliotomy Cases with Special Reference to Shock and Septic Peritonitis.

The three post-operative conditions, which, by reason of their serious nature, call for prompt and intelligent action on the part of the surgeon are secondary hemorrhage, shock and septic peritonitis. In regard to secondary hemorrhage, the treatment should be mainly preventive, and consists of careful, certain securing of all possible sources of hemorrhage at the time of operation. But, as an additional preventive measure, and one whose importance is sometimes under-estimated, continuous watchful care must be exercised to prevent sudden movements on the part of the patient, or turning or tossing during the first few hours following the operation. If hemorrhage does occur, the only remedy is to re-open the wound and re-tie the bleeding artery. If the patient's condition will not allow of this, the author suggests to secure the vessel by clamps, close the wound as securely as circumstances will admit and wait for reaction. The author suggests that the transfusion of one or two pints of normal salt solution before opening the wound will greatly improve the patient's chances of recovery in desperate cases.

Shock he regards as a severe irritation of the entire sympathetic system and in no sense a paresis. Such, at least, is the condition

primarily though he admits that after a variable period the entire condition may change without any perceptible change in the symptoms. All muscular tissue tires after a period of unusual activity. This is equally true of involuntary as of voluntary muscles. And although the nerve impulse continues irritant in nature, the heart muscle is weakened, and cannot contract with normal vigor. The arterial spasm is at the same time violent. The frequency of the heart beat may continue the same, but the size of the blood current will not be increased.

The conditions which exist during and after a cœliotomy, which is productive of shock, certainly would seem to be such as would give rise to an impulse of irritation rather than of paresis, for instance—the compression of the nerve fibres by the ligature, the severe manipulation of the intestines, the forcible separation of adhesions, whereby the peritoneum always suffers more or less violence—all are extremely irritant in nature.

In regard to the treatment of shock; when first seen, the patient's head should be lowered, and nitrite of amyl freely administered, with possibly hypodermics of nitroglycerine. The surface of the body should be kept as dry as possible to prevent unnecessary chilling by evaporation. As the author considers the condition to be one of extreme irritation, he advises directly sedative remedies and especially cœdeine, of which he administers at least one grain hypodermically as soon as the patient is placed in bed, and repeats the injection in one two or three hours if necessary. He answer the objections that have been raised against the use of opium by saying that there are no symptoms to be masked by its use thus early and that so far from the checking of the secretions and the stopping of the peristaltic movements of the intestines being deleterious he ragards it as just the reverse, since in shock the prespiration is excessive and the peristaltic movements painful and irregular. Hot water used freely by injection into the colon or transfusion into a vein, he considers a remedy of great importance in the treatment of shock. The indications for its use are to allay the great thirst which follows an abdominal section and to refill the blood vessels. If the shock extends into the second period,, where cardiac and arterial spasm are replaced by cardiac weakness, by reason of "muscle tire," he advises the free hypodermic use of strychnia, digitatis and other cardiac stimulants.

In the post-operative treatment of threatening sepsis (or peritonitis) he advises free catharsis by means of the magnesia salts or calomel, if the stomach will not tolerate the magnesia. In ordinary cases where there has not been much irritation of the abdominal or pelvic contents, there will be no difficulty in producing catharsis after thirty-six or forty eight-hours. But in those cases where the dissection of tumors etc., has been difficult and prolonged, where there has been severe manipulatian of the intestine,, with perhaps direct and intense irritation of ganglia and plexuses, there is generally a more or less severe irritation of the intestines. This manifests itself by paroxysmal pains, often extremely severe, which are caused by spasmodic and irregular peristalsis. Here there is always over-stimulation of the motor nerves of the intestines and fuel is only added to the fire by the exhibition of stimulating cathartics. The indication is to severely abstain from everything that tends to stimulate peristalsis until, by the subsidence of the pain or the escape of the flatus, we can perceive that normal peristalsis is re-established, and the conditions are favorable for gentle unirritating catharsis. If the abnormal activity of the intestines be severe or prolonged, the author advises the early administration of a free dose of codeine; which relieves the pain, quiets the patient and relaxes intestinal spasm, and allows the re-establishment of normal painless peristalsis.

The effusion of liquid into the peritoneal cavity also hinders catharsis by depleting the intestinal blood-vesssls. Much will be gained, the author thinks, by waiting till this flow is checked and the blood vessels have been given time to replenish themselves from the fluids in the tissues. It will be of benefit to precede the administration of salines by a rectal iujection through the long tube of at least a pint of hot water, which will be rapidly absorbed by the vessels. Then the introduction of a concentrated solution of sulphate of magnesia will easily establish the flow of fluid toward the intestinal canal and promote the rapid absorption of the fluid present is the peritoneal cavity. Thus good intestinal drainage is established.

If septic peritonitis is fairly established the forlorn hope is to re-open the cavity, thoroughly flush and a establish free complete drainage, both through the wound and the intestinal canal. Intestinal drainage may be difficult of production from the over—distension of the muscular coat by imprisoned gases, To remedy this and thus allow the muscular fibres to regain tone, a free incision into the intestine with perhaps establishment of a temporary artificial anus, will be good surgery.

Dr. Andrew F. Currier in an article on the

Intra-uterine Tampon

gives the indications for its use and the materials of which it should be made. His preference is for antiseptic gauze, inserted in strips an inch wide and eighteen inches long. He advocates the use of the tampon for the induction of labor, in a prolonged first stage of labor due to rigidity of the cervix and in post-partum floodings. In the unimpregnated uterus he advocates its use after curettage, to check hemorrhage and for the relief of the painful and profuse menstruation in young girls. Its use is also advised in endometritis and in place of stems in the treatment of stenosis. He considers it applicable in a limited extent in cases of tubal disease in order to drain ofi the accumulated fluid. In regard to the contra-indications for its use, he says "The tampon

may be so modified in as to quantity, firmness and duration of retention that I am unable to conceive of the impropriety of its use in any case in which intra-uterine treatment is admissible."

Dr. A. H. McFarland discusses the

Relations of Operative Gynecology to Insanity.

His conclusions are as follows:

(1) Gynecological operations are more likely than any other surgical procedures to disturb the mind.

(2) Hereditary antecedents of the patients should always be determined.

(3) In insane patients operations should be performed only when the physical condition endangers or renders life insupportable,

(4) Patients, precedent to the operation, should be in a calm frame of mind—hence, moral treatment of the patient previous to operating is the best prophylaxis.

(5) Inherited and acquired insane constitution is the fundamental factor in most cases of insanity. This conclusion does not, however, justify us in ignoring physical discases immediately preceding or associated with insanity.

(6) Healthy genital organs do not give rise to reflex symptoms, consequently caution should be exercised in operating for the relief of insanity.

(7) Operations may be satisfactory in properly selected cases.

Dr. Joseph Tabor Johnson considers the subject of

Ectopic Pregnancy in the Later Months.

The chief object of the paper is to recommend the removal of an extra-uterine fœtus in all cases as soon as the diagnosis is made, and the gestation sac or placenta whenever possible, whether it be the second, fourth, seventh or ninth month. If the child can be saved, victory is still greater. The dangers of hemorrhage increase with the development of the placenta and in some cases the author believes it may be wise to leave the placenta undisturbed, with its tied cord protruding from the lower end of the wound, and subsequently remove it after its circulation has dried up; or if no sepsis occurs, it may be left to come away piecemeal, or become encysted and absorbed.

The author reports two cases operated on after the death of the fœtus, with one maternal death.

Dr. A. Vanderveer discusses the subject of

Drainage of Ovarian Cysts Where the Adhesions are Such that it is Impossible to Remove the Sac by Cœliotomy.

The author reports seven cases where the proceeding was resorted to. In carrying out drainage in these cases the patient should be put in the care only of a conscientious, judicious nurse. A glass draingae tube should be employed and made to reach to the deeper portion of the cyst, and whatever remains of the cyst walls and adhesions. A rubber drainage tube cannot be relied upon at first. Gauze packing is preferable to the latter.

The author advocates the procedure only in those cases in which it is impossible to make a complete operation, and in such desperate cases where the patient is likely to be carried beyond the point of possible recovery, and to die by shock, because of the too severe tax made upon the weakened vitality of the system.

Dr. J. M. Keating contributes a paper on the "Mechanical Action of the Intestines on the Uterus." The author believes that many of the displacements found in the growing uterus are due to the intestinal dyspepsias of the child, which are the result of improper diet. The article is illustrated by two half-tone plates from photographs.

Dr. Augustus P. Clark contributes an article "On the Value of Certain Methods of Surgical Treatment for Chronic Procidentia Uteri." The various operations for the relief of this condition are carefully considered and the author advocates vaginal hysterectomy in cases of intractable prolapse.

Dr. Charles W. Rook discusses "Contraction of the Cervix Uteri Upon the Neck of the Fœtus, a Source of Danger to the Latter, and a Frequent Cause of the Prolongation of the Second stage of Labor." The author reports four cases of the accident. (In two of the cases reported, ergot had been given and it seems possible that the accident could be attributed to the use of the drug previous to delivery.—Ed).

Dr. H. McHatton contributes a paper entitled "Four Women who Refused Oophorectomy, and their Subsequent Histories." The patients are all living in the best of health in spite of the fact that each was advised to undergo an operation by well-known specialists. The author condemns indiscriminate operating.

In the Department of Pædiatry, Dr. William P. Munn contributes an article entitled

Diphtheria Associated with Scarlatina; A Clinical Study.

The points that he considers proven by an analysis of cases are:

(1) The membranous sore throat which so frequently occurs associated with scarlatina is true diphtheria.

(2) Association with scarlatina increases the fatality of diphtheria.

(3) Laryngeal and nasal involvement are more frequent with the associated diseases than with uncomplicated diphtheria.

(4) Paralysis does occur as a sequel.

(5) Both scarlatina and so-called scarlatinal diphththeria may communicate diphtheria without any scarlatinal accompaniment, both to those who have had, and to those who have not had, scarlatina previously.

The remaining papers in this issue are: "Intra-uterine Asphyxia, with Report of Three Cases," by Dr. George F. Hulbert; and the report of a "Fibroid Tumor Complicating Delivery," by Dr. T. J. Crofford. A review of this paper has already appeared in the issue of The Medical and Surgical Reporter for October 14th, 1893, page 616.

PERISCOPE.

IN CHARGE OF WILLIAM H. BRICKER, M. D., B. SC.

MEDICINE

Influ nce of Horziontal and Vertical Positions on the Cerebral Functions.

Sicard de Plauzoles (*Ann. de Pysch.*, 1893) lays stress on the function of the blood in maintaining the activity of the brain. A continuous circulation of the blood is a necessary condition, he says, for the regular action of the cerebral cells. Suspend momentarily the circulation in the encephalon and the phenomena of nervous activity are interrupted. The circulation of the blood is affected by the different positions of the body, the horizontal position accelerating and the upright inhibiting it. The carotid and vertebral arteries at the base of the brain anastomose in the hexagon of Willis, and in an erect position this latter rests on them, pressing them down upon the base of the skull, thus diminishing the flow of blood over the cortex. The brain-mass, being smaller than its bony covering, is capable of slight changes of position, according to the posture of the individual. Where stretched out horizontally, the cerebral substance loses its contact with the frontal wall, and in standing the upper portion rests on the lower part of the brain.

When, after lying down for some time, one suddenly rises, the brain passes from a congested to a relatively anæmic state and vertigo results. The modifications of the brain circulation, which cause vertigo, can be produced in two opposite ways—by congestion and anæmia.

Delirium may be due to these opposed conditions, and, indeed, all phenomena of cerebral origin—as convulsions, insomnia, etc.—may be caused by two contrary circulatory conditions.

Congested vertigo increases in a declined position of the head; anæmical vertigo in the erect position. Further, vertigo is often caused by sudden changes of attitude.

Normally, man passes a certain number of hours in the vertical position and in the horizontal position, and in the case of a healthy man it is difficult to perceive any very appreciable modifications of the play of thought following these changes of the cerebral position; but, in the case of persons mentally diseased, S. has found marked modifications, corresponding to these two periods.

One patient suffered for several weeks with insomnia. Before rising he was delirious, had continued feelings of faintness, and thought he was about to die, the violence of his sensations being lightened relatively to the amount of sleep he had obtained during the night. The temple pulse was more violent than when erect, the two not acting simultaneously, and the left more feeble than the right. During the day the patient improved, but in the afternoon, on extending himself in a hammock, the delirious symptoms returned.

Other cases are also cited. He sums up his statements thus:

Mental disturbance is greatest (1.) after a long horizontal condition—in the morning for example; (2) after a long vertical condition, in the evening, the intermediate hours being the least disturbed.—*Jour. of Nerv. and Ment. Dis.*

THERAPEUTICS.

Esencia De Calisaya.

Since this preparation was first put upon the market by it has grown rapidly in favor as a tonic, stomachic, and to a lesser extent as an antiperiodic. There are few cases in the convalescent stage to which it is not applicable, especially if anorexia, weakness, and physical and mental depression are to be overcome.

It is a well-known fact, moreover, that the combined alkaloids of the cinchona bark are much more effective as a tonic than any one of the same taken singly. They are to be preferred in many instances as an antiperiodic particularly where the periodicity of the attack has been in some degree mitigated. It is for this reason that the East India Government now provides its officials with what is termed "Cinchona Febrifuge"—which is but a combination of cinchona alkaloids—in preference to quinine. While cases are encountered where quinine seems practically indispensable, there are few that will not yield, and more satisfactory, to a combination of cinchona alkaloids if persisted in.—Esencia de Calisaya and Cinchona Febrifuge are practically identical, save that the former is a fluid medicament, the latter a powder.

Esencia de Calisaya has been employed and highly recommended as a tonic in neurasthenia and other forms of disease that are the result of, or connected with, general physical and mental depression. *Apropos* of this, Dr. Wyatt Wingrave, Surgeon at the London Throat and Ear Hospital remarks:

"I have great pleasure in expressing my appreciation of Esencia de Calisaya. It is an ideal 'Pick-me-up' and general tonic. It is slightly stimulant to the gastric mucous membrane, and is particularly useful in atonic dyspepsia. *In the alcohol habit, it satisfactorily neutralizes the craving for spirits*, and will be found of great service in treating this distressing disease."